

	L #	Hits	Search Text	DBs	Time Stamp
1	L1	388	galactosyltransferase\$1 or galactosyl adj transferase\$1	USPAT; US-PGPUB	2002/06/12 15:59
2	L2	5171	gb3 or cd77 or globotriaosylceramide	USPAT; US-PGPUB	2002/06/12 16:00
3	L4	0	2 adj synthase\$1	USPAT; US-PGPUB	2002/06/12 16:00
4	L3	11	1 and 2	USPAT; US-PGPUB	2002/06/12 16:01

PGPUB-DOCUMENT-NUMBER: 20020058254
PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20020058254 A1

TITLE: Screening methods for enzymes and enzyme kits

PUBLICATION-DATE: May 16, 2002

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Short, Jay M.	Rancho Santa Fe	CA	US	

US-CL-CURRENT: 435/6,435/455 ,435/7.1

ABSTRACT:

Recombinant enzyme libraries and kits where a plurality of enzymes are each characterized by different physical and/or chemical characteristics and classified by common characteristics. The characteristics are determined by screening of recombinant enzymes expressed by a DNA library produced from various microorganisms. Also disclosed is a process for identifying clones of a recombinant library which express a protein with a desired ctivity by screening a library of expression clones randomly produced from DNA of at least one microorganism, said screeing being effected on expression products of said clones to thereby identify clones which express a protein with a desired activity. Also disclosed is a process of screening clones having DNA from an uncultivatedmicroorganism for a specified protein activity by screening for a specified protein activity in a library of clones prepared by (i) recovering DNA from a DNA population derived from at least one uncultivated microorganism; and (ii) transforming a host with recovered DNA to produce a library of clones which is screened for the specified protein activity.

DATE FILED: January 2, 2001

FOREIGN-APPL-PRIORITY-DATA:

COUNTRY	APPL-NO	DOC-ID	APPL-DATE
US	PCT/US96/11854	1996US-PCT/US96/11854	July 17, 1996

----- KWIC -----

DETX:

[0193] d. Glycoside synthesis using UDP-galactosyl transferase

DETL:

19TABLE 4 23 wherein R = 4-methyl umbelliferone G2 .beta.-D-galactose
.beta.-D-glucose .beta.-D-glucoronide **GB3** .beta.-D-celotrioside
.beta.-B-cellobiopyranoside GC3 .beta.-D-galactose .alpha.-D-galactose GD3

.beta.-D-glucose .alpha.-D-glucose GE3 .beta.-D-glucoronide GI3
.beta.-D-N,N-diacetylchitobiose GJ3 .beta.-D-fucose .alpha.-L-fucose
.beta.-L-fucose GK3 .beta.-D-mannose .alpha.-D-mannose non-Umbelliferyl
substrates GA3 amylose [polyglucan .alpha.1,4 linkages], amylopectin
[polyglucan branching .alpha.1,6 linkages] GF3 xylan [poly 1,4-D-xylan] GG3
amylopectin, pullulan GH3 sucrose, fructofuranoside

PGPUB-DOCUMENT-NUMBER: 20020051987
PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20020051987 A1

TITLE: Enzyme kits and libraries

PUBLICATION-DATE: May 2, 2002

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Short, Jay M.	Rancho Santa Fe	CA	US	

US-CL-CURRENT: 435/6,435/455 ,435/7.21

ABSTRACT:

Recombinant enzyme libraries and kits where a plurality of enzymes are each characterized by different physical and/or chemical characteristics and classified by common characteristics. The characteristics are determined by screening of recombinant enzymes expressed by a DNA library produced from various microorganisms.

DATE FILED: May 18, 2001

----- KWIC -----

BSTX:

[0140] d. Glycoside synthesis using UDP-galactosyl transferase

DETL:

5TABLE 4 28 4-methyl umbelliferone wherein R = G2 .beta.-D-galactose
.beta.-D-glucose .beta.-D-glucuronide GB3 .beta.-D-cellobioside
.beta.-B-cellobiopyranoside GC3 .beta.-D-galactose .alpha.-D-galactose GD3
.beta.-D-glucose .alpha.-D-glucose GE3 .beta.-D-glucuronide GI3
.beta.-D-N,N-diacetylchitobiose GJ3 .beta.-D-fucose .alpha.-L-fucose
.beta.-L-fucose GK3 .beta.-D-mannose .alpha.-D-mannose non-Umbelliferyl
substrates GA3 amylose [polyglucan .alpha.1,4 linkages], amylopectin
[polyglucan branching .alpha.1,6 linkages] GF3 xylan [poly 1,4-D-xylan] GG3
amylopectin, pullulan GH3 sucrose, fructofuranoside

US-PAT-NO: 6335170

DOCUMENT-IDENTIFIER: US 6335170 B1

TITLE: Gene expression in bladder tumors

DATE-ISSUED: January 1, 2002

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
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Orntoft; Torben F.	DK 8230 Aabyhoj	N/A	N/A	DKX
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US-CL-CURRENT: 435/6,435/91.1 ,435/91.2 ,536/23.1 ,536/24.3 ,536/24.31
,536/24.33

ABSTRACT:

Methods for analyzing tumor cells, particularly bladder tumor cells employ gene expression analysis of samples. Gene expression patterns are formed and compared to reference patterns. Alternatively gene expression patterns are manipulated to exclude genes which are expressed in contaminating cell populations. Another alternative employs subtraction of the expression of genes which are expressed in contaminating cell types. These methods provide improved accuracy as well as alternative basis for analysis from diagnostic and prognostic tools currently available.

21 Claims, 24 Drawing figures

Exemplary Claim Number: 1

Number of Drawing Sheets: 15

DATE FILED: February 22, 2000

----- KWIC -----

DETL:

D26599_at Human mRNA for proteasome subunit "HsC7-I," complete cds 387 269
352 358 375 557 D26600_at Human mRNA for proteasome subunit "HsN3," complete
cds 70 218 251 178 184 281 D28114_at Human mRNA for MOBP (myelin-associated
oligodendrocytic basic "protein)," complete "cds," clone hOPRP2 58 65 136 46
135 181 D28118_at Human mRNA for "DB1," complete cds 27 20 46 65 20 20
D28124_at Human mRNA for unknown "product," complete cds 552 580 314 348 485
442 D28137_at Human mRNA for "BST-2," complete cds 176 64 342 196 168 195
D28235_s_at Humsn PTGS2 gene for prostaglandin endoperoxide "synthase,"
complete cds 47 37 41 55 20 33 D28364_at Human mRNA for annexin "II," 5'UTR
(sequence from the 5'cap to the start codon). /gb=D28364 /ntype=RNA 209 29 83
46 128 47 D28383_at Human mRNA for ATP synthase B "chain," 5'UTR (sequence
from the 5'cap to the start codon). /gb=D28364 /ntype=RNA 219 87 20 218 726
343 D28416_at Human mRNA for esterase "D," 5'UTR (sequence from the 5'cap to
the start codon). /gb=D28416 /ntype=RNA 301 182 223 185 354 195 D28423_at
Human mRNA for pre-mRNA splicing factor "SRp20," 5'UTR (sequence from the
5'cap to the start cadon). /gb=D28423 /ntype=RNA 241 91 260 259 55 312
D28473_s_at Human T-lymphocyte mRNA for isoleucyl-tRNA "synthetase," complete
cds 58 115 257 104 20 139 D28476_at Human mRNA for KIAA0045 "gene," complete
cds 76 69 204 45 58 20 D28483_at Human scr3 mRNA for RNA binding protein
"SCR3," complete cds 87 44 20 76 215 134 D28532_at Human mRNA for renal
Na+-dependent phosphate "cotransporter," complete cds 89 73 36 31 40 69

D28539_s_at Human mRNA for metabotropic glutamate receptor subtype "5b," complete cds 20 20 20 20 20 20 D28588_at Human mRNA for KIAA0048 "gene," complete cds 39 34 180 20 20 41 D28589_at Human mRNA "(KIAA00167)," partial sequence. /gb=D28589 /ntype=RNA 20 20 20 104 20 38 D28791_at Human PIG-A "gene," 5'flanking region and 24 20 29 26 41 20 D28915_at Human gene for hepatitis C-associated microtubular aggregate protein p44 65 125 50 28 66 154 D29012_at Human mRNA for proteasome subunit "y," complete cds 600 628 441 463 895 854 D29013_at Human mRNA for DNA polymerase "beta," complete cds 71 63 48 140 110 171 D29640_s_at Human mRNA for KIAA0051 "gene," complete cds 45 32 227 202 137 41 D29641_at Human mRNA for KIAA0052 "gene," partial cds 98 77 42 51 22 20 D29642_at Human mRNA for KIAA0053 "gene," complete cds 78 36 20 30 20 79 D29643_at Human mRNA for KIAA0115 "gene," complete cds 221 120 273 237 208 72 D29875_at 20 20 20 20 243 51 D29675_s_at Human inducible nitric oxide synthase "gene," promoter and exon 1 /gb=D29675 /ntype=DNA /annot=exon 65 93 75 121 705 111 D29677_at Human mRNA for KIAA0054 "gene," complete cds 20 20 20 20 20 20 D29805_at Human mRNA for "beta-1,4-galactosyltransferase," complete cds 291 77 171 116 96 82 D29810_at Human mRNA for unknown "product," partial cds 29 20 20 20 20 53 D29833_at Human mRNA for salivary protein rich peptide "P-B," complete cds 50 20 20 28 46 97 D29954_at Human mRNA for KIAA0056 "gene," partial cds 159 120 203 146 449 397 D29956_at Human mRNA for KIAA0055 "gene," complete cds 20 49 21 74 20 55 D29958_at Human mRNA for KIAA0116 "gene," partial cds 63 39 20 88 33 45 D29963_at Human SFA-1 (a member of transmembrane 4 superfamily) "mRNA," complete cds 277 482 415 445 475 331 D29992_at Human mRNA for placental protein 5 "(PP5)," complete cds 20 20 20 20 35 20 D30036_at Human mRNA for phosphatidylinositol transfer protein "(PI-TPalpha)," complete cds 20 33 20 20 20 20 D30037_at Human mRNA for phosphatidylinositol transfer protein "(PI-TPbeta)," complete cds 85 41 49 44 105 45 D30655_at Human mRNA for eukaryotic initiation factor 4AII 391 728 949 878 315 614 D30715_xpt5_s_at exon2s from Human PAP (pancreatitis-associated protein) "gene," 5'-flanking region. /gb=D30715 /ntype=DNA /annot=exon 20 65 20 27 76 125 D30742_at Human mRNA for calmodulin-dependent protein kinase "IV," complete cds 20 20 20 20 20 20 D30755_at Human mRNA for KIAA0113 "gene," partial cds 66 116 20 78 127 20 D30756_at Human mRNA for KIAA0049 "gene," complete cds 106 84 109 103 195 107 D30758_at Human mRNA for KIAA0050 "gene," complete cds 139 198 81 124 75 211 D31628_s_at Human gene for 4-hydroxyphenylpyruvic acid dioxygenase "(HPD)," complete cds 25 20 72 21 115 140 D31716_at Human mRNA for GC box binding "protein," complete cds 70 33 45 22 20 77 D31762_at Human mRNA for KIAA0057 "gene," complete cds 20 20 20 20 20 20 D31763_at Human mRNA for KIAA0065 "gene," partial cds 48 35 68 34 20 76 D31784_at Human mRNA for KIAA0064 "gene," complete cds 117 57 20 20 20 80 D31765_at Human mRNA for KIAA0061 "gene," partial cds 240 172 293 210 265 301 D31766_at Human mRNA for KIAA0060 "gene," complete cds 138 85 162 157 397 20 D31767_at Human mRNA for KIAA0058 "gene," complete cds 236 205 620 209 395 204 D31784_at Human mRNA for cadherin-6 44 20 20 20 20 20 D31797_at Human CD40 ligand (CD40L) "gene," 5'flanking region and 20 46 35 20 20 46 D31815_at Human mRNA for SMP-30 (senescence marker "protein-30)," complete cds 20 43 20 20 20 67 D31833_s_at Humsn mRNA for vasopressin V1b "receptor," complete cds 20 20 20 20 20 20 D31840_s_at Human DRPLA mRNA for "ORF," complete cds 20 20 54 71 20 20 D31846_at Human gene for aquaporin-2 water "channel," "exon1-4," complete cds 402 424 353 370 870 594 D31883_at Human mRNA for KIAA0059 "gene," complete cds 567 431 341 210 344 20 D31884_at Human mRNA for KIAA0063 "gene," complete cds 209 191 143 182 342 257 D31885_at Human mRNA for KIAA0069

"gene," partial cds 76 103 393 205 282 182 D31886_at Human mRNA for KIAA0066
 "gene," partial cds 20 20 20 20 20 20 D31887_at Human mRNA for KIAA0062
 "gene," partial cds 83 20 100 20 97 20 D31888_at Human mRNA for KIAA0071
 "gene," partial cds 56 28 62 20 199 20 D31889_at Human mRNA for KIAA0072
 "gene," partial cds 33 29 35 20 158 50 D31890_at Human mRNA for KIAA0070
 "gene," partial cds 135 186 267 218 55 188 D31891_at Human mRNA for KIAA0067
 "gene," complete cds 99 64 79 145 328 309 D31897_at Human mRNA for Doc2
 (Double "C2)," complete cds 141 25 27 125 188 66 D32001_at Human HuSAA1g
 gene for serum amyloid A1 "gamma," exon 3 and intron 3 86 37 95 41 165 153
 D32002_s_at Human mRNA for nuclear cap binding "protein," complete cds 20 20
 20 20 20 20 D32050_at Human mRNA for alanyl-tRNA "synthetase," complete cds
 41 166 268 111 154 122 D32129_f_at Human mRNA for HLA class-1 (HLAA-A26)
 heavy "chain," complete cds (clone cMY-1) 753 1884 1462 1368 405 1528
 D32202_at Human mRNA for alpha 1C adrenergic receptor isoform "2," complete
 cds 44 20 20 20 84 82 D37781_s_at Human mRNA for protein-tyrosine phosphatase
 "HPTPeta," complete cds 20 20 20 20 20 20 D37931_at Human mRNA for RNase "4,"
 complete cds 41 70 68 107 161 101 D37965_at Human mRNA for PDGF receptor
 beta-like tumor suppressor "(PRLTS)," complete cds 20 20 20 20 20 33
 D37984_s_at Human mRNA for DNA helicase "Q1," partial cds 20 20 29 20 39 20
 D38024_at Human facioscapulohumeral muscular dystrophy (FSHD) gene "region,"
 D4Z4 tandem repeat unit 20 20 20 20 328 80 D38037_at Human mRNA for
 FK506-binding protein 12kDa (hFKBP-12) "homologue," complete cds 20 20 20 20
 52 24 D38047_at Human mRNA for 26S proteasome subunit "p31," complete cds 481
 298 527 541 347 700 D38048_at Human mRNA for proteasome subunit "z," complete
 cds 264 173 196 131 20 138 D38073_at Human mRNA for hRlf beta subunit (p102
 "protein)," complete cds 44 84 95 97 31 116 D38076_at Human mRNA for RanBP1
 (Ran-binding protein "1)," complete cds 106 134

DETL:

protein "P5," complete cds 83 92 219 109 20 80 D49490_at Human mRNA for
 protein disulfide isomerase-related protein "(PDIR)," complete cds 148 73 20
 20 143 20 D49493_at Human gene for human bone morphogenetic protein-3b 20 59
 20 20 20 125 D49677_at Human U2AF1-RS2 "mRNA," complete cds 20 20 20 20 20
 20 D49728_at Human NAK1 mRNA for DNA binding "protein," complete cds 37 112
 367 118 793 407 D49738_at Human cytoskeleton associated protein (CG22)
 "mRNA," complete cds 114 186 322 113 160 242 D49742_at Human mRNA for HGF
 activator like "protein," complete cds 20 20 20 20 20 20 D49817_at Human
 mRNA for fructose "6-phosphate,2-kinase/fructose" "2,6-bisphosphatase,"
 complete cds 20 59 20 20 22 20 D49818_at Human mRNA for fructose
 "6-phosphste,2-kinase/fructose" "2,6-bisphosphatase," partial cds 170 46 181
 123 211 55 D49824_at 20 20 20 20 20 20 D49824_s_at Human HLA-B null allele
 mRNA 2821 3076 5271 4505 776 3898 D49950_at Human Liver mRNA for
 interferon-gamma inducing "factor(IGIF)," complete cds 126 25 20 20 20 20
 D49958_at Human fetus brain mRNA for membrane glycoprotein "M6," complete cds
 55 20 20 20 105 24 D50063_at Human mRNA for proteasome subunit p40 / Mov34
 "protein," complete cds 108 183 198 190 400 261 D50310_at Human mRNA for
 cyclin "I," complete cds 247 325 237 161 143 221 D50312_at Human mRNA for
 "uKATP-1," complete cds 20 20 20 20 20 20 D50370_at Human mRNA for
 nucleosome assembly "protein," complete cds 20 37 20 20 20 41 D50402_at
 Human mRNA for "NRAMP1," complete cds 20 20 20 20 189 20 D50405_at Human
 mRNA for RPD3 "protein," complete cds 137 148 158 135 20 67 D50477_s_at
 Human mRNA for mambrane-type matrix metalioproteinase "3," complete cds 32 20
 105 20 356 21 D50487_at Human mRNA for RNA helicase "(HRH1)," complete cds 20

20 20 38 30 20 D50495_at Human mRNA for transcription elongation factor
 "S-II," "hS-II-T1," complete cds 20 20 20 20 20 20 D50525_at Human mRNA for
 TI-227H. /gb=D50525 /ntype=RNA 35 55 233 83 26 109 D50532_at Human mRNA for
 macrophage lectin "2," complete cds 20 20 20 20 20 20 D50550_at Human LLGL
 "mRNA," complete cds 37 20 20 20 20 20 D50582_at Human gene for inward
 rectifier K "channel," complete cds 73 48 27 48 20 178 D50640_at Human DNA
 for phosphodiesterase 3B 20 95 32 20 151 29 D50645_at Human mRNA for "SDF2,"
 complete cds 20 44 89 72 44 36 D50663_at Human mRNA for TCTEL1 "gene,"
 complete cds 199 269 210 211 102 350 D50678_at Human mRNA for apolipoprotein
 E receptor "2," complete cds 25 20 20 20 20 20 D50683_at Human mRNA for
 TGF-beta1R "alpha," complete cds 100 120 20 95 74 42 D50692_at Human mRNA
 for c-myc binding "protein," complete cds 136 31 87 111 292 190 D50810_at
 Human mRNA for placental leucine "aminopeptidase," complete cds 68 20 115 30
 273 20 D50840_at Human mRNA for ceramide "glucosyltransferase," complete cds
 851 209 462 180 54 177 D50855_s_at Human mRNA for Ca-sensing "receptor,"
 complete cds 39 88 64 20 170 114 D50857_at Human DOCK180 protein "mRNA,"
 complete cds 47 84 166 96 226 121 HG1877-HT1917_s_at Myelin Basic "Protein,"
 Alt. Splice Form 4 20 20 48 20 20 20 HG1879-HT1919_at Ras-Like Protein Tc10
 28 96 69 20 20 108 HG1980-HT2023_at "Tubulin," Beta 2 903 1132 2507 1529
 844 1006 HG1996-HT2044_at Guanine Nucleotide-Binding Protein "Rap2,"
 Ras-Oncogene Related 20 20 20 20 20 20 HG2007-HT2056_s_at Proto-Oncogene
 "Sno," Alt. Splice N 20 20 27 26 20 20 HG2028-HT2082_at Laminin, A
 Polypeptide 85 33 35 49 73 146 HG2036-HT2090_at Stimulatory Gdp/Gtp Exchange
 Protein For C-Ki-Ras P21 And Smg P21 100 20 20 20 334 25 HG2059-HT2114_at
 Arrestin, Beta 2 38 78 25 21 20 50 HG2075-HT2137_s_at Camp-Responsive
 Element "Modulator," Alt. Splice 1 20 20 20 20 37 20 HG2090-HT2152_s_at
 External Membrane "Protein," 130 Kda (Gb:Z22971) 55 132 109 31 20 134
 HG210-HT210_s_at Galactokinase 2 33 83 83 72 170 99 HG213-HT2208_f_at
 Beta-1-Glycoprotein "1," Pregnancy-Specific (Gb:M25384) 20 20 20 20 20 20
 HG2147-HT2217_at Mucin "3," Intestinal (Gb:M55405) 724 1428 1745 1308 1593
 684 HG2147-HT2217_r_at Mucin "3," Intestinal (Gb:M55405) 20 20 50 20 1614
 541 HG2148-HT2218_f_at Mucin "3," Intestinal (Gb:M55406) 36 70 133 51 184 84
 HG2149-HT2219_at Mucin (Gb:M57417) 22 42 256 20 479 186 HG2152-HT2222_at
 Zinc Finger Protein 92 20 20 20 20 20 20 HG2157-HT2227_at Mucin "4,"
 Tracheobronchial 20 20 20 20 258 61 HG2160-HT2230_at 20 20 20 20 20 20
 HG2161-HT2231_at Translocation-Associated Notch (Drosophila) Homolog 1 20 20
 20 20 20 20 HG2167-HT2237_at Protein Kinase "Ht31," Camp-Dependent 99 95 64
 143 20 76 HG2171-HT2241_at 12-Lipoxygenase 20 20 20 20 20 20
 HG2171-HT2241_r_at 12-Lipoxygenase 20 20 20 20 20 20 HG2175-HT2245_s_at
 "Myosin," Heavy Polypeptide "10," Non-Muscle 36 20 78 20 20 20
 HG2188-HT2258_at Paired Box Hup1 (Gb:X15042) 20 20 20 20 20 20
 HG2190-HT2260_at Crystallin, Beta B3 (Gb:X15144) 20 20 20 20 49 20
 HG2191-HT2261_at Crystallin, Beta B3 (Gb:X15145) 20 24 20 20 20 20
 HG2197-HT2267_s_at "Cottage," Type "VII," Alpha 1 20 99 155 111 696 224
 HG2228-HT2305_at Crystallin, Beta B 20 20 20 20 20 20 HG2229-HT2308_at
 Paired Box Hup1 (Gb:X15250) 20 20 20 20 20 20 HG2238-HT2321_s_at Nuclear
 Mitotic Apparatus Protein "1," Alt. Splice Form 2 40 31 296 436 786 256
 HG2239-HT2324_at Potassium Channel Protein (Gb:Z11585) 20 20 20 20 20 84
 HG2239-HT2324_r_at Potassium Channel Protein (Gb:Z11585) 41 20 138 93 1169
 375 HG2247-HT2332_at Major Intrinsic Protein 20 20 20 20 20 20
 HG2255-HT2344_f_at Phosphoribosyl Pyrophosphate "Synthetase," Subunit Iii 20
 20 20 20 20 44 HG2259-HT2348_s_at "Tubulin," Alpha "1," isoform 44 20 20 20
 20 20 20 HG2260-HT2349_s_at Duchenne Muscular Dystrophy Protein (Dmd) 20 20

20 20 81 20 HG2261-HT2351_s_at "Antigen," Prostate "Specific," Alt. Splice Form 2 20 20 20 20 55 27 HG2261-HT2352_at Antigen, Prostate "Specific," Alt. Splice Form 3 20 20 20 20 30 20 HG2264-HT2360_at Alpase, Ca2+ "Transporting," Plasma Membrane "1," Alt. Splice 6 180 26 20 103 400 326 HG2271-HT2367_at 20 20 20 20 20 21 HG2271-HT2367_s_at Profilaggrin 20 20 20 20 20 20 HG2274-HT2370_at Rna Polymerase "II," 14.5 Kda Subunit 86 98 20 51 20 90 HG2279-HT2375_at Triosephosphate isomerase 1112 872 1858 1837 788 910 HG2280-HT2376_at D-Amino-Acid Oxidase 176 102 232 121 201 153 HG2290-HT2386_at Calcitonin 71 20 20 20 25 20 HG2309-HT2405_at Insulin-Like Growth Factor Ib 20 20 20 20 20 20 HG2314-HT2410_at 4-Beta-Galactosyltransferase 20 20 20 20 20 57

DETL:

20 20 20 20 104 20 M36072_at Human ribosomal protein L7a (surf 3) large subunit "mRNA," complete cds 2150 3875 4953 4145 1479 1748 M36089_at Human DNA-repair protein (XRCC1) "mRNA," complete cds 99 161 232 107 350 293 M36118_s_at Human cytotoxin serine protease-C "mRNA," complete cds 20 20 31 20 20 93 M36200_at Human synaptobrevin 1 (SYB1) gene 53 166 100 43 56 142 M36205_at Human syntaptobrevin 2 (SYB2) gene 22 20 20 36 20 20 M36284_s_at Human glycoporphin C "mRNA," complete cds 59 104 20 20 20 20 M36341_at Human ADP-ribosylation factor 4 (ARF4) "mRNA," complete cds 225 225 402 212 198 98 M36429_s_at Human transducin beta-2 subunit "mRNA," complete cds 91 20 193 180 107 59 M36430_s_at human transducin beta-1 subunit "mRNA," 3' end 118 118 269 335 45 265 M36542_s_at Human lymphoid-specific transcription factor "mRNA," complete cds 63 20 263 208 20 20 M36634_at Human vasoactive intestinal peptide (VIP) "mRNA," complete cds 20 38 20 29 20 20 M36653_s_at Human 2-Oct factor "mRNA," complete cds 20 20 20 20 20 20 M36803_at Human hemopexin gene 20 20 20 20 20 20 M37033_at Human CD53 glycoprotein "mRNA," complete cds 229 393 461 275 265 581 M37075_at Human embryonic/atrial myosin light chain (MLC-1-emb/A isoform) gene 20 20 20 20 20 20 M37104_at Human mitochondrial ATPase coupling factor 6 subunit (ATP5A) "mRNA," complete cds 338 111 241 175 188 144 M37190_at Human ras inhibitor "mRNA," 3' end 50 120 20 20 70 81 M37197_at Human CCAAT-box-binding factor (CBF) "mRNA," complete cds 82 66 115 83 20 67 M37238_s_at Human phospholipase C "mRNA," complete cds 33 57 281 144 20 43 M37245_at Human Ig superfamily cytotoxic T-lymphocyte-associated protein (CTLA-4) gene 46 186 91 41 305 316 M37271_s_at Human CD7 antigen "gene," exons 4-Jan 20 20 20 20 20 20 M37400_at Human cytosolic aspartate aminotransferase "mRNA," complete cds 35 20 20 20 20 20 M37435_at Human macrophage-specific colony-stimulating factor (CSF-1) "mRNA," complete cds 197 181 163 152 605 420 M37457_at 168 257 323 190 361 134 M37457_s_at Human "Na+,K+" #NAME? catalytic subunit alpha-III isoform gene 20 20 20 20 20 20 M37485_cds1_at IGH@ gene (Ig Dxp heaavy-chain gene) extracted from Human Ig germline H-chain D-refion Dxp 1 and Dxp'1 "genes," 3' end 20 20 20 20 38 29 M37583_at Human histone (H2AZ) "mRNA," complete cds 288 108 359 240 41 349 M37712_at Human p58/GTA (galactosyltransferase associated protein kinase) "mRNA," complete cds 20 20 29 25 20 20 M37721_at Human peptidylglycine alpha-amidating monooxygenase "mRNA," complete cds 122 88 96 44 20 98 M37755_f_at Human pregnancy-specific beta 1-glycoprotein gene PSGGA 34 84 162 81 265 24 M37763_at Human neurotrophin-3 (INT-3) "gene," complete cds 31 20 36 45 20 142 M37766_at Human MEM-102 glycoprotein "mRNA," complete cds 69 302 48 49 78 229 M37815_cds1_at Human T-cell membrane glycoprotein CD28 mRNA, exon 4 20 54 20 48 212 172 M37825_at Human fibroblast growth factor05 (FGF-5) "mRNA,"

complete cds 70 99 36 67 24 120 M37981_at Human alpha-3 neuronal nicotinic
 acetylcholine receptor subunit "mRNA," complete cds 20 31 20 20 20 20
 M37984_ma1_at Human slow wtitch skeletal muscle/cardiac muscle troponin C
 gene, complete cds 267 225 406 237 207 370 M38180_ma1_at Human
 3-beta-hydroxysteroid dehydrogenase/delta-5-delta-4-isomerase (3-beta-HSD)
 "gene," complete cds 20 20 22 20 20 20 M38258_at Human retinoic acid receptor
 gamma 1 "mRNA," complete cds 53 20 20 69 179 68 M38449_s_at Human
 transforming growth factor-beta "mRNA," complete "cds," clone pTGF-beta-trp114
 101 33 108 24 159 191 M38591_at Homo sapiens cellular ligand of annexin II
 (p11) "mRNA," complete cds 1891 75 90 228 20 230 M38690_at Human CD9 antigen
 "mRNA," complete cds 1172 367 1654 1216 189 264 M54914_s_at Human
 follicle-stimulating hormone beta-subunit gene 20 24 20 20 20 20 M54915_s_at
 Human h-pim-1 protein (h-pim-1) "mRNA," complete cds 500 154 436 506 184 169
 M54927_at Human myelin proteolipid protein "mRNA," complete cds 33 48 20 20
 20 186 M54951_at Human atrial natriuretic factor gene 62 20 20 20 20 60
 M54968_at Human K-ras oncogene protein "mRNA," complete cds 20 35 28 20 41 20
 M54992_at Human B-cell differentiation antigen "mRNA," complete cds 70 20 22
 20 20 20 M54995_at Human connective tissue activation peptide III "mRNA,"
 complete cds 20 99 58 31 72 93 M55024_s_at Human cell surface glycoprotein
 P3.58 "mRNA," partial cds. /gb=M55024 /ntype=RNA 20 20 20 20 20 21 M55040_at
 Human acetylcholinesterase (ACHE) "mRNA," complete cds 225 208 115 280 286
 656 M55047_at Human synaptotagmin "mRNA," complete cds 35 60 56 77 55 128
 M55067_at Human 47-kD autosomal chronic granulomatous disease protein "mRNA,"
 complete cds 174 137 91 137 157 20 M55131_at Human cystic fibrosis
 transmembrane conductance regulator (CFTR) gene 39 40 207 20 20 25 M55150_at
 Human fumarylacetoacetate hydrolase "mRNA," complete cds 166 371 435 309 518
 467 M55153_at Human transglutaminase (TGase) "mRNA," complete cds 20 28 20
 78 169 238 M55172_at Human large aggregating cartilage proteoglycan core
 protein "mRNA," complete cds 20 46 20 20 180 77 M55210_at Human laminin B2
 chain (LAMB2) gene 20 50 132 124 319 20 M55265_at Human casein kinase II
 alpha subunit "mRNA," complete cds 108 116 193 112 330 88 M55267_at Human
 EV12 protein gene 20 95 35 20 205 20 M55268_at Human casein kinase II alpha
 subunit "mRNA," complete cds 57 114 254 254 200 20 M55284_at Human protein
 kinase C-L (PRKCL) "mRNA," complete cds 20 20 20 20 20 20 M55409_s_at Human
 pancreatic tumor-related protein "mRNA," 3' end 1992 2532 4850 4627 719 906
 M55418_at Human amelogenin (AMELX) "gene," 3' end of cds 20 34 20 20 238 20
 M55419_at Human amelogenin (AMELY) "gene," 3' end of cds 20 20 20 20 20 20
 M55420_at Human IgE "chain," last 2 exons 105 43 64 168 20 121 M55422_at
 Human Krueppel-related zinc finger protein (H-plk) "mRNA," complete cds 20 78
 178 96 37 90 M55513_s_at Human potassium channel (HPCN1) "mRNA," complete cds
 52 20 120 57 260 93 M55531_at Human glucose transport-like 5 (GLUT5) "mRNA,"
 complete cds 82 121 208 141 90 96 M55542_at Human guanylate binding protein
 isoform I (GBP-2) "mRNA," complete cds 117 20 58 26 20 96 M55543_at Human
 guanylate binding protein isoform II (GBP-2) "mRNA," complete cds 77 189 292
 251 33 129 M55593_at Human collagenase type IV (CLG4) gene 739 471 351 274
 271 384 M55621_at Human N-acetylglucosaminyltransferase 1 (GlcNac-TI) "mRNA,"
 complete cds 304 20 215 600 397 80 M55671_at Human protein Z (plus 55 bp
 insertion) "mRNA," complete cds 122 162 20 100 268 105 M55682_s_at Human
 cartilage matrix protein (CMP) gene 20 20 20 20 20 20 M55683_at Human
 cartilage matrix protein (CMP) "mRNA," exon 8-Mar 20 20 20 20 20 20
 M55905_at Human mitochondrial NAD(P)+ dependent malic enzyme "mRNA," complete
 cds 20 20 76 58 20 20 M55998_s_at Human alpha-1 collagen type I "gene," 3'
 end 1610 1610 360 46 221 326 M57230_at Human membrane glycoprotein gp130

"mRNA," complete cds 20 20 20 20 27 33 M57293_at Human parathyroid hormone-related peptide (PTHrP) "gene," exons "1A," "1B," "1C," and 2 /gb=M57293 /ntype=DNA /annot=mRNA 20 20 20 20 202 210 M57399_at Human nerve growth factor (HBNF-1) "mRNA," complete cds 150 128 45 135 299 481 M57423_f_at 20 20 20 20 103 20 M57464_s_at Human ret proto-oncogene "mRNA," complete cds 23 20 41 20 20 49 M57466_s_at Human NHC class II HLA-DP light chain "mRNA," complete cds 188 312 20 20 20 880

DETL:

20 45 20 20 20 22 U09117_at Human phospholipase c delta 1 "mRNA," complete cds 344 464 206 612 638 1198 U09178_s_at Human dihydropyrimidine dehydrogenase "mRNA," complete cds 20 44 56 27 57 20 U09196_at Human 1.1 kb mRNA upregulated in retinoic acid treated HL-60 neutrophilic cells 95 213 339 197 408 314 U09210_at Human vesicular acetylcholine transporter "mRNA," complete cds 20 131 20 20 23 20 U09278_at Human fibroblast activation protein "mRNA," complete cds 20 34 20 20 20 20 U09279_at Human type XIX collagen (COL19A1) "mRNA," partial cds 20 58 56 20 20 20 U09284_at Human PINCH protein "mRNA," complete cds 20 53 92 53 28 106 U09303_at Human T cell leukemia LERK-2 (EPLG2) "mRNA," complete cds 95 240 171 132 478 308 U09366_at Human zinc finger protein ZNF133 76 109 98 156 283 210 U09367_at Human zinc finger protein ZNF136 20 67 20 20 20 50 U09368_at Human zinc finger protein ZNF140 20 25 41 20 47 20 U09410_at Human zinc finger protein ZNF131 "mRNA," partial cds 20 42 36 61 82 212 U09411_at Human zinc finger protein ZNF132 "mRNA," complete cds 20 104 55 21 186 234 U09412_at Human zinc finger protein ZNF134 "mRNA," complete cds 47 98 69 87 78 109 U09413_at Human zinc finger protein ZNF135 "mRNA," complete cds 20 72 20 20 118 25 U09414_at Human zinc finger protein ZNF137 "mRNA," complete cds 20 74 102 96 24 91 U09477_at Human clone 53BP1 p53-binding protein "mRNA," partial cds 89 99 127 99 129 192 U09510_s_at Human glycyl-tRNA synthetase "mRNA," complete cds 138 121 197 141 210 111 U09550_at Human oviductal glycoprotein "mRNA," complete cds 20 20 20 29 38 20 U09564_at Human serine kinase "mRNA," complete cds 117 79 247 104 132 43 U09578_at Human MAPKAP kinase (3pK) "mRNA," complete cds 20 20 20 68 20 25 U09579_at Human melanoma differentiation associated (mda-6) "mRNA," complete cds 242 61 20 203 315 131 U09584_at Human PL6 protein (PL6) "mRNA," complete cds 136 130 83 104 40 20 U09587_at 144 178 135 163 50 210 U09607_at Human JAK family protein tyrosine kinase (JAK3) "mRNA," complete cds 68 85 20 86 320 321 U09609_at Human p80HT (p80HT/NKFB-2) "mRNA," complete cds 20 42 88 20 20 71 U09648_at Human carnitine palmitoyltransferase II precursor (CPT1) gene 20 20 20 20 29 20 U09716_s_at Human mannose-specific lectin (MR60) "mRNA," complete cds 20 25 154 62 115 89 U09759_at Human protein kinase (JNK2) "mRNA," complete cds 23 20 44 20 227 20 U09770_at Human cysteine-rich heart protein (hCRHP) "mRNA," complete cds 114 150 64 173 62 255 U09813_at Human mitochondrial ATP synthase subunit "9," P3 gene "copy," "mRNA," nuclear gene encoding mitochondrial "protein," complete cds 715 434 1114 771 138 403 U09820_s_at 25 36 111 51 224 82 U09825_at Human acid finger protein "mRNA," complete cds 85 52 204 164 20 197 U09848_at Human zinc finger protein (ZNF139) "mRNA," partial cds 39 147 169 35 160 26 U09850_at Human zinc finger protein (ZNF143) "mRNA," complete cds 20 44 20 20 114 170 U09851_s_at Human zinc finger protein (ZNF148) "mRNA," partial cds 20 23 67 45 20 20 U09860_at Human enterokinase "mRNA," complete cds 20 20 40 42 36 94 U09877_at Human helicase-like protein (HLP) "mRNA," complete cds 20 20 20 20 20 20 U09937_ma1_s_at urokinase-type plasminogen activator receptor gene extracted from Human urokinase-type

plasminogen receptor 20 40 82 124 33 136 U09953_at Human ribosomal protein L9
 "mRNA," complete cds 2506 2871 3863 2285 930 959 U10099_s_at Human POM-ZP3
 "mRNA," complete cds 20 20 20 20 20 20 U10117_at Human endothelial-monocyte
 activating polypeptide II "mRNA," complete cds 70 20 116 39 20 20 U10323_at
 Human nuclear factor NF45 "mRNA," complete cds 172 254 655 456 263 685
 U10324_at Human nuclear factor NF90 "mRNA," complete cds 20 20 20 20 20 42
 U10362_at Human GP36b glycoprotein "mRNA," complete cds 65 20 20 35 20 20
 U10439_at Human double-stranded RNA adenosin deaminase "mRNA," complete cds
 116 154 163 234 221 251 U10473_s_at Human clone p4betaGT/3
 "beta-1,4-galactosyltransferase" "mRNA," partial cds. /gb=U10473 /ntype=RNA 42
 35 20 38 20 31 U10485_at Human lymphoid-restricted membrane protein (Jaw1)
 "mRNA," complete cds 47 20 75 116 20 229 U10492_at Human Mox1 protein (MOX1)
 "mRNA," complete cds 156 153 74 79 20 125 U10550_at Human Gem GTPase (gem)
 "mRNA," complete cds 129 24 87 20 116 24 U10685_at Human MAGE-10 antigen
 (MAGE10) "gene," complete cds 89 25 99 63 178 93 U10686_at Human MAGE-11
 antigen (MAGE11) "gene," complete cds 132 125 277 102 231 231 U10687_s_at
 Human MAGE-4a antigen (MAGE4a) "gene," complete cds 20 20 20 20 20 71
 U10689_f_at Human MAGE-5a antigen (MAGE5a) "gene," complete cds 20 20 58 20
 412 29 U10690.sub.-- f_at Human MAGE-5b antigen (MAGE5b) "gene," complete cds
 20 20 26 20 215 20 U10693_at Human MAGE-8 antigen (MAGE8) "gene," complete
 cds 35 20 20 20 104 70 U10868_at Human aldehyde dehydrogenase ALDH7 "mRNA,"
 complete cds 77 144 122 105 65 61 U10886_at Human density enhanced
 phosphatase-1 "mRNA," complete cds 20 20 37 20 20 20 U10991_at Human G2
 protein "mRNA," partial cds 30 59 57 38 236 81 U11036_at Human lbd1 "mRNA,"
 partial cds. /gb=U11036 /ntype=RNA 20 20 20 20 20 20 U11037_at Human Sel-1
 like "mRNA," complete cds 26 20 20 45 266 20 U11090_at Human
 hydroxyindole-O-methyltransferase promoter A-derived (HIOMT) "mRNA," complete
 cds 63 32 107 38 52 266 U11287_at Human N-methyl-D-aspartate receptor subunit
 NR3 (hNR3) "mRNA," complete cds 20 20 20 20 20 20 U11292_at Human Ki nuclear
 autoantigen "mRNA," complete cds 137 127 259 201 366 407 U11313_at Human
 sterol carrier protein-X/sterol carrier protein-2 (SCP-X/SCP-2) "gene,"
 promoter and 20 20 64 49 20 83 U11690_at Human faciogenital dysplasia (FGD1)
 "mRNA," complete cds 74 68 20 20 20 85 U11701_at Human LIM-homeobox domain
 protein (hLH-2) "mRNA," complete cds 20 20 20 20 20 20 U11717_s_at Human
 calcium activated potassium channel (hslo) "mRNA," complete cds 20 20 20
 20 20 U11732_at Human ets-like gene (tel) "mRNA," complete cds 66 20 20 75
 66 24 U11791_at Human cyclin H "mRNA," complete cds 85 20 20 81 70 193
 U11821_s_at Human Fas ligand (FasL) "mRNA," complete cds 20 20 20 20 20 20
 U11861_at Human G10 homolog (edg-2) "mRNA," complete cds 432 536 525 431 585
 462 U11862_s_at Human clone HP-DAO1 diamine "oxidase," copper/topa
 quinone-containing "mRNA," complete cds 20 20 20 20 250 20 U11863_at Human
 clone HP-DAO2 diamine "oxidase," copper/topa quinone containing "mRNA,"
 complete cds 20 20 20 20 20 20 U11870_ma1_at Human interleukin-8 receptor
 type A (IL8RBA) gene, promoter and complete cds. 20 22 20 48 20 67 U11872_at
 Human interleukin-9 receptor type B (IL8RB) "mRNA," splice variant "IL8RB1,"
 partial cds. /gb=U11872 /ntype=RNA 20 71 53 49 135 105 U11875_s_at Human
 interleukin-8 receptor type B (IL8RB) "mRNA," splice variant "IL8RB4," partial
 cds. /gb=U11875 /ntype=RN 56 39 136 29 275 140 U11877_at Human interleukin-8
 receptor type B (IL8RB) "mRNA," splice variant "IL8RB9," partial cds.
 /gb=U11877 /ntype=RNA 51 60 20 20 177 20 U11878_at Human interleukin-8
 receptor type B (IL8RB) "mRNA," splice variant "IL8RB10," partial cds.
 /gb=U11878 /ntype=RNA 20 20 20 20 20 86 U12139_at Human alpha1(XI) collagen
 (COL11A1) "gene," 5' region and exon 1 /gb=U12139 /ntype=DNA /annot=exon 261

243 20 169 548 20 U12140_at Human tyrosine kinase receptor p145TRK-B (TRK-B)
 "mRNA," complete cds 27 20 84 52 106 66 U12255_at Human IgG Fc receptor hFcRn
 "mRNA," complete cds 195 195 332 133 321 261 U12259_cds2_s_at Human paired
 box homeotic protein (PAX3) gene 20 20 20 20 283 24

DETL:

X12794_at Human v-erbA related ear-2 gene 157 197 298 395 502 380
 X12876_s_at 385 745 2078 2384 1014 310 X12901_at Human mRNA for villin 20
 20 20 20 38 20 X12953_at Human rab2 "mRNA," YPT1-related and member of ras
 family 108 69 29 132 20 63 X13100_s_at Human mRNA fragment for myosin heavy
 chain 20 20 20 20 20 20 X13227_at Human mRNA for D-amino acid oxidase (EC
 1.4.3.3) 41 20 51 36 20 157 X13238_at Human mRNA for cytochrome c oxidase
 suubnit VIc 563 339 399 560 286 494 X13255_at Human mRNA for dopamine
 beta-hydroxylase type a (EC 1.1.4.17.1) 20 20 20 20 42 20 X13293_at Human
 mRNA for B-myb gene 20 20 20 20 20 20 X13334_at Human CD14 mRNA for myelid
 cell-specific leucine-rich glycoprotein 20 20 20 20 20 407 X13444_at Human
 mRNA for CD8 beta-chain glycoprotein (CD8 beta 1) 241 152 223 151 246 268
 X13451_s_at 20 20 20 20 20 20 X13461_s_at H. sapiens intronless
 calmodulin-like gene (CLP gene) for mcalmodulin-like protein 296 20 20 71 20
 68 X13482_at Human mRNA for U2 snRNP-specific A' protein 54 41 74 89 45 38
 X13546_ma1_at Human HMG-17 gene for non-histone chromosomal protein HMG-17.
 222 216 271 254 208 1126 X13589_at Human mRNA for aromatase (estrogen
 synthetase) 20 20 20 20 31 20 X13766_s_at Human beta-casein mRNA 3'-terminal
 fragment 20 20 20 20 20 20 X13794_ma1_at H. sapiens lactate dehydrogenase B
 gene exon 1 and 2 (EC 1.1.1.27) (and joined CDS). 300 508 961 947 160 232
 X13810_s_at Human OTF-2 mRNA for lymphoid-specific transcription factor 20
 273 201 74 1568 517 X13839_at Human mRNA for vascular smooth muscle
 alpha-actin 1405 801 20 20 43 20 X13916_at Human mRNA for LDL-receptor
 related protein 29 38 35 57 20 20 X13930_f_at Human CYP2A4 mRNA for P-450
 IIA4 protein 94 113 253 127 204 158 X13955_s_at Human mRNA for myosin alkali
 light chain 20 20 20 20 20 20 X13956_at Human 12S RNA induced by "poly(rl),"
 poly(rC) and Newcastle disease virus 26 67 104 41 55 119 X13967_at Human
 mRNA for leukaemia inhibitory factor (LIF/HILDA) 145 80 94 62 268 236
 X13973_at Human mRNA for ribonuclease/angiogenin inhibitor (RAI) 153 131 173
 176 156 204 X14008_ma1_f_at Human lysozyme gene (EC 3.2.1.17) 602 1072 336
 481 553 986 X14046_at Human mRNA for leukocyte antigen CD37 43 63 31 20 42
 159 X14085_s_at H. sapiens mRNA for "beta-1,4-galactosyltransferase" (EC
 2.4.1.22) 112 141 275 192 215 124 X14253_s_at Human mRNA for cripto protein
 51 33 20 20 175 22 X14329_at Human mRNA for carboxypeptidase N small subunit
 (EC 3.4.17.3) 20 61 20 20 81 72 X14346_at Human mRNA for eosinophil
 peroxidase 20 20 20 20 20 32 X14362_at Human CR1 mRNA for C3b/C4b receptor
 secreted form 20 20 20 20 20 20 X14445_at Human int-2 proto-oncogene 98 21
 20 20 140 83 X14448_at Human GLA gene for alpha-D-galactosidase A (EC
 3.2.1.22) 123 115 109 97 178 228 X14474_at Human mRNA for
 microtubule-associated tau protein 20 22 95 20 143 31 X14675_at Human
 bcr-abl mRNA 5' fragment (clone 3c). /gb=X14675 /ntype=RNA 130 60 116 85 20
 189 X14684_s_at Human mRNA for La protein C-terminal region 136 258 469 379
 244 172 X14690_s_at Human mRNA for plasma inter-alpha-trypsin inhibitor heavy
 chain H(3) 20 20 20 20 20 20 X14766_at Human mRNA for GABA-A "receptor,"
 alpha 1 subunit 115 91 226 123 20 56 X14767_at Human mRNA for GABA-A
 "mreceptor," beta 1 subunit 30 20 20 20 180 20 X14787_at Human mRNA for
 thrombospondin 155 20 23 20 20 23 X14789_at H. sapiens alpha-A crystallin
 gene exon "1,2" and pseudoexon 30 20 44 20 20 20 X14813_at Human liver mRNA

for 3-oxoacyl-CoA thiolase 60 32 91 114 61 219 X14830_at Human mRNA for
 muscle acetylcholine receptor beta-subunit 58 45 46 24 75 161 X14850_at
 Human H2A.X mRNA encoding histone H2A.X 54 44 87 99 47 165 X14885_ma1_s_at
 H. sapiens gene for transforming growth factor-beta 3 (TGF-beta 3) exon 1 (and
 joined CDS) 20 20 20 20 20 20 X14894_at Human mRNA for myogenic factor Myf-5
 20 20 20 20 20 20 X14968_at Human testis mRNA for the RII-alpha subunit of
 cAMP dependent protein kinase 20 20 20 20 20 20 X14975_at Human CDI R2 gene
 for MHC-related antigen 20 21 20 20 20 27 X15088_at Human GNAT1 mRNA for
 transducin alpha-chain 20 20 20 20 20 20 X15183_at Human mRNA for 90-kDa
 heat-shock protein 919 1273 1901 1791 586 1790 X15187_at Human tra1 mRNA for
 human homologue of murine tumor rejection antigen gp96 199 106 307 246 139
 172 X15217_at Human sno oncogene mRNA for snoA "protein," ski-related 20 20
 20 20 20 20 X15218_at Human ski oncogene mRNA 20 20 20 20 38 20
 X15306_ma1_at H. sapiens NF-H gene, exon 1 (and joined CDS). 20 25 28 23 70
 20 X15331_s_at Human mRNA for phosphoribosylpyrophosphate synthetase subunit
 one 20 20 20 20 109 112 X15341_at Human COX Via-L mRNA for cytochrome c
 oxidase liver-specific subunit VIa (EC 1.9.3.1) 1338 1071 1351 1611 944 1377
 X15357_at Human mRNA for natriuretic peptide receptor (ANP-A receptor) 20 20
 38 52 31 108 X15376_at Human mRNA for GABA-A "receptor," gamma 2 subunit 90
 83 92 73 91 104 X15393_ma1_at H. sapiens motilin gene exon 2 (and joined
 CDS). 93 98 138 116 254 223 X15414_at Human mRNA for aldose reductase (EC
 1.1.1.2) 110 174 93 249 383 254 X15422_at Human mRNA for mannose-binding
 protein C 20 20 20 20 20 20 X15525_ma1_at H. sapiens lysosomal acid
 phosphatase gene (EC 3.1.3.2) Exon 1 (and joined CDS) 25 54 59 22 31 53
 X15573_at Human liver-type 1-phosphofructokinase (PFKL) "mRNA," complete cds
 20 20 20 31 20 20 X15673_s_at Human pTR2 mRNA for repetitive sequence.
 /gb=X15673 /ntype=RNA 66 108 246 124 262 137 X15675_at Human pTR7 mRNA for
 repetitive sequence. /gb=X15675 /ntype=RNA 20 20 20 20 136 20 X15722_at
 Human mRNA for glutathione reductase (EC 1.6.4.2) 20 20 20 20 20 20
 X15729_s_at Human mRNA for nuclear p68 protein 305 295 511 489 201 262
 X15822_at Human COX VIIa-L mRNA for liver-specific cytochrome c oxidase (EC
 1.9.3.1.) 760 830 710 834 439 1003 X15875_at Human mRNA for cAMP response
 element (CRE-BP1) binding protein 62 35 64 58 123 78 X15880_at Human mRNA
 for collagen VI alpha-1 C-terminal globular domain 429 267 136 92 221 181
 X15882_at Human mRNA for collagen VI alpha-2 C-terminal globular domain 314
 68 31 20 52 30 X15940_at Human mRNA form ribosomal protein L31 3375 5994
 4331 4748 2189 4097 X15943_at Human calcitonin/alpha-C GRP gene 20 20 20 20
 20 20 X15949_at Human mRNA for interferon regulatory factor-2 (IRF-2) 21 33
 52 60 22 49 X15954_ma1_s_at H. sapiens MBP1 "gene," exon 1 (and joined CDS)
 20 20 20 20 20 20 X16064_at Human mRNA for translationally controlled tumor
 protein 4572 3795 3961 4448 1971 2255 X16105_at Human mRNA for RD "protein,"
 RNA-binding 81 99 118 108 20 54 X16135_at Human mRNA for novel heterogeneous
 nuclear RNP "protein," L protein 242 326 388 317 481 477 X16260_s_at Human
 mRNA for inter-alpha-trypsin inhibitor subunit 3 20 20 20 20 20 20 X16281_at
 Human mRNA for zinc finger protein (clone 431) 20 20 20 20 73 20 X16282_at
 Human mRNA for zinc finger protein (clone 647) 20 20 20 20 35 20 X16316_at
 Human mRNA for vav oncogene 153 111

DETL:

20 20 20 20 20 20 Y09561_at H. sapiens mRNA for P2X7 receptor 27 20 20 20
 20 20 Y09615_at H. sapiens mRNA for mitochondrial transcription termination
 factor 20 25 20 20 20 20 Y09616_at H. sapiens mRNA for putative
 carboxylesterase 121 92 143 96 135 159 Y09836_at H. sapiens mRNA for 3'UTR

of unknown protein 62 35 20 20 64 20 Y09858_at H. sapiens mRNA for unknown
protein 20 30 27 24 52 38 Y09912_ma1_at H. sapiens AP-2 beta gene. 20 20
20 20 20 20 Y09943_s_at H. sapiens mRNA for NGF-inducible PC3
anti-proliferative protein 20 20 20 20 20 20 Y09980_ma4_at H. sapiens HOXD3
gene. 20 27 27 20 56 20 Y10032_at H. sapiens mRNA for putative
serine/threonine protein kinase 130 28 20 26 76 107 Y10055_at H. sapiens
mRNA for phosphoinositide 3-kinase 20 20 20 20 149 85 Y10141_s_at H. sapiens
DAT1 "gene," "partial," VNTR. /gb=Y10141 /ntype=DNA /annot=CDS 20 20 133 24
231 143 Y10202_at H. sapiens mRNA for CD207 protein. /gb=Y10202 /ntype=RNA 20
20 20 20 20 24 Y10204_at H. sapiens mRNA for CD77 protein. /gb=Y10204
/ntype=RNA 20 24 20 20 20 20 Y10205_at H. sapiens mRNA for CD88 protein.
/gb=Y10205 /ntype=RNA 20 20 20 20 20 20 Y10207_at H. sapiens mRNA for CD171
protein. /gb=Y10207 /ntype=RNA 57 90 27 20 135 211 Y10209_at H. sapiens mRNA
for CD30L protein. /gb=Y10209 /ntype=RNA 20 20 20 20 20 20 Y10210_at Y.
sapiens mRNA for CD22 protein. /gb=Y10210 /ntype=RNA 20 20 20 20 20 20
Y10256_at H. sapiens mRNA for serine/threonine protein "kinase," NIK 20 20 20
20 53 20 Y10260_at H. sapiens EYA1 gene 20 40 20 20 125 21 Y10262_s_at H.
sapiens EYA3 gene. /gb=Y10262 /ntype=DNA /annot=CDS 20 20 66 20 112 29
Y10275_at H. sapiens mRNA for L-3-phosphoserine phosphatase 20 20 20 20 30 20
Y10313_at H. sapiens mRNA for nerve growth factor-inducible PC4 homologue 34
26 26 20 95 51 Y10375_s_at H. sapiens mRNA for SIRP-alpha1 20 20 20 20 467
139 Y10376_at H. sapiens mRNA for SIRP-beta1 106 20 33 30 20 147 Y10505_at
H. sapiens mRNA for CD104 protein. /gb=Y10505 /ntype=RNA 20 20 20 20 20 20
Y10506_at H. sapiens mRNA for CD110 protein. /gb=Y10506 /ntype=RNA 24 65 20
20 59 20 Y10508_s_at H. sapiens mRNA for CD190 protein. /gb=Y10508 /ntype=RNA
20 20 20 20 20 20 Y10510_at H. sapiens mRNA for CD67S protein. /gb=Y10510
/ntype=RNA 20 20 20 20 47 20 Y10511_at H. sapiens mRNA for CD176 protein.
/gb=Y10511 /ntype=RNA 23 20 20 20 20 20 Y10512_at H. sapiens mRNA for CD282
protein. /gb=Y10512 /ntype=RNA 20 20 20 20 20 20 Y10514_s_at mRNA for CD152
protein. /gb=Y10514 /ntype=RNA 20 26 20 31 166 55 Y10515_at H. sapiens mRNA
for CD58 T7 protein. /gb=Y10515 /ntype=RNA 20 20 20 20 45 20 Y10517_at
H. sapiens mRNA for CD108 protein. /gb=Y10517 /ntype=RNA 20 20 20 20 28 20
Y10518_at H. sapiens mRNA for CD202 protein. /gb=Y10518 /ntype=RNA 20 20 20
20 59 25 Y10571_at H. sapiens mRNA for dinG gen 20 20 20 20 20 22 Y10615_at
H. sapiens CYRN2 gene. /gb=Y10615 /ntype=DNA /annot=CDS 34 20 53 34 110 63
Y10659_at H. sapiens IL-13Ra mRNA 20 20 20 20 20 24 Y10807_s_at H. sapiens
mRNA for arginine "methyltransferase," splice "variant," 1262 bp 87 101 558
442 456 407 Y10812_at H. sapiens mRNA for fructose-bisphosphatase 20 20 20
20 20 20 Y10871_at H. sapiens twist gene 110 154 116 97 279 284 Y10936_at
H. sapiens mRNA for hypothetical protein downstream of DMPK and DMAHP 41 20
61 35 58 40 Y11174_at H. sapiens mRNA for RP3 gene. /gb=Y11174 /ntype=RNA 20
20 20 20 20 20 Y11180_at H. sapiens mRNA for twist "protein," partial.
/gb=Y11180 /ntype=RNA 20 29 20 20 20 20 Y11215_at H. sapiens mRNA for SKAP55
protein. /gb=Y11215 /ntype=RNA 34 58 55 50 20 66 Y11251_at H. sapiens mRNA
for novel member of serine-arginine domain "protein," SRrp129 20 20 40 22 41
20 Y11306_ma1_at Homo sapiens mRNA for hTCF-4. 67 58 63 53 20 96 Y11416_at
H. sapiens mRNA for P73. 20 43 20 21 125 64 Y11651_at H. sapiens mRNA for
phosphate cyclase 20 20 24 30 20 20 Y11681_at Homo sapiens mRNA for
mitochondrial ribosomal protein S12. /gb=Y11681 /ntype=RNA 112 172 137 114 40
154 Y11709_at H. sapiens mRNA for extracellular matrix protein collagen type
"XIV," N-terminus. /gb=Y11709 /ntype=RNA 20 20 20 20 20 20 Y11710_ma1_at H.
sapiens mRNA for extracellular matrix protein collagen type XIV, C-terminus.
21 73 43 52 127 131 Y11897_at H. sapiens Brx gene 3'UTR. /gb=Y11897

/ntype=RNA 66 40 57 56 159 98 Y11999_at H. sapiens mRNA for inositol
 "1,4,5-trisphosphate" 3-kinase. /gb=Y11999 /ntype=RNA 20 20 20 20 20 20
 Y12393_s_at H. sapiens mRNA for SRP1-like "protein," partial 20 20 88 40 20
 39 Y12394_at H. sapiens mRNA for SRP1-like protein 20 20 27 20 20 20
 Y12478_at H. sapiens mRNA for CHD5 protein 20 20 20 20 20 20 Y12556_at H.
 sapiens mRNA for AMP-activated protein kinase beta-1. /gb=Y12556 /ntype=RNA 20
 20 20 20 20 20 Y12670_at H. sapiens OB-RGRP gene. /gb=Y12670 /ntype=RNA 20
 71 165 133 20 20 Y12711_at H. sapiens mRNA for putative protosterone binding
 protein 73 48 133 153 91 65 Y12812_at H. sapiens RFXAP mRNA 20 20 20 20 20
 20 Y12856_at H. sapiens mRNA for AMP-activated protein kinase "alpha-1,"
 partial. /gb=Y12856 /ntype=RNA 41 20 22 20 105 39 Y13115_at Homo sapiens mRNA
 for serin/threonine protein kinase SAK 55 78 26 48 117 92 Y13153_at Homo
 sapiens mRNA for kynurenin 3-monooxygenase. /gb=Y13153 /ntype=RNA 32 26 24 26
 133 99 Y13247_at Homo sapiens fb19 mRNA 81 49 91 123 328 171 Y13618_at Homo
 sapiens mRNA for DFFRY "protein," abundant transcript 20 20 20 22 20 20
 Y13620_at Homo sapiens mRNA for BCL9 gene. /gb=Y13620 /ntype=RNA 20 20 20 20
 20 20 Y13896_at Homo sapiens skeletal muscle alternate 5'end of gene Kir4.2
 5'UTR. /gb=Y13896 /ntype=RNA 20 20 20 20 143 35 Y14140_at Homo sapiens G
 protein gene encoding beta 3 subunit exon 1 and promoter. /gb=Y14140
 /ntype=DNA /annot=exon 88 57 121 88 128 120 Z00010_at 20 20 20 20 38 31
 Z11502_at H. sapiens mRNA for intestine-specific annexin 20 20 20 20 66 45
 Z11518_s_at H. sapiens mRN for histidyl-tRNA synthetase 20 20 98 38 216 57
 Z11559_at H. sapiens mRNA for iron regulatory factor 38 24 28 20 20 60
 Z11685_s_at H. sapiens mRNA for RNA helicase 20 20 20 33 32 20 Z11695_at H.
 sapiens 40 kDa protein kinase related to rat ERK2 20 20 20 20 20 20
 Z11697_at Homo sapiens mRNA for HB15 27 20 25 20 87 20 Z11737_at H. sapiens
 mRNA for flavin-containing monooxygenase 4 20 20 37 20 44 20 Z11793_at H.
 sapiens mRNA for selenoprotein P 208 92 40 28 20 54 Z11850_at H. sapiens
 mRNA for somatotropin receptor 5' upstream region. /gb=Z11850 /ntype=RNA 20
 20 20 20 20 Z11899_s_at H. sapiens OTF3 mRNA encoding octamer binding
 protein 3B 68 154 191 235 94 139 Z11933_at H. sapiens mRNA for N-Oct "3,"
 "N-Oct5a," and N-Oct 5b proteins 20 20 20 20 275 20 Z12173_at H. sapiens GNS
 mRNA encoding glucosamine-6-sulphatase 20 20 20 20 20 43 Z12830_at H.
 sapiens mRNA for SSR alpha subunit 20 20 23 36 20 29 Z12962_at H. sapiens
 mRNA for homologue to yeast ribosomal protein L41 7468 11237 7087 7602 8100
 7623

US-PAT-NO: 6280926

DOCUMENT-IDENTIFIER: US 6280926 B1

TITLE: Gene expression library produced from DNA from uncultivated microorganisms and methods for making the same

DATE-ISSUED: August 28, 2001

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Short; Jay M.	Rancho Santa Fe	CA	N/A	N/A

US-CL-CURRENT: 435/4,435/183 ,435/6

ABSTRACT:

Disclosed is a process of screening clones having DNA from an uncultivated microorganism for a specified protein, e.g. enzyme, activity by screening for a specified protein, e.g. enzyme, activity in a library of clones prepared by (i) recovering DNA from a DNA population derived from at least one uncultivated microorganism; and (ii) transforming a host with recovered DNA to produce a library of clones which is screened for the specified protein, e.g. enzyme, activity.

22 Claims, 5 Drawing figures

Exemplary Claim Number: 1

Number of Drawing Sheets: 5

DATE FILED: December 10, 1997

----- KWIC -----

DEPV:

d. Glycoside synthesis using UDP-galactosyl transferase

DETL:

TABLE 4 ##STR23## 4-methyl umbelliferone wherein R = G2 .beta.-D-galactose .beta.-D-glucose .beta.-D-glucuronide GB3 .beta.-D-celotrioside .beta.-B-cellobiopyranoside GC3 .beta.-D-galactose .alpha.-D-galactose GD3 .beta.-D-glucose .alpha.-D-glucose GE3 .beta.-D-glucuronide GI3 .beta.-D-N,N-diacetylchitobiose GJ3 .beta.-D-fucose .alpha.-L-fucose .beta.-L-fucose GK3 .beta.-D-mannose .alpha.-D-mannose non-Umbelliferyl substrates GA3 amylose [polyglucan .alpha.1.4 linkages], amylopectin [polyglucan branching .alpha.1.6 linkages] GF3 xylan [poly 1,4-D-xylan] GG3 amylopectin, pullulan GH3 sucrose, fructofuranoside

US-PAT-NO: 6168919

DOCUMENT-IDENTIFIER: US 6168919 B1

TITLE: Screening methods for enzymes and enzyme kits

DATE-ISSUED: January 2, 2001

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Short, Jay M.	Encinitas	CA	N/A	N/A

US-CL-CURRENT: 435/6,435/183 ,435/252.3 ,435/320.1 ,435/325 ,435/4 ,435/91.1 ,435/91.4 ,435/91.41 ,536/23.1 ,536/23.2 ,536/23.4

ABSTRACT:

Recombinant enzyme libraries and kits where a plurality of enzymes are each characterized by different physical and/or chemical characteristics and classified by common characteristics. The characteristics are determined by screening of recombinant enzymes expressed by a DNA library produced from various microorganisms. Also disclosed is a process for identifying clones of a recombinant library which express a protein with a desired ctivity by screening a library of expression clones randomly produced from DNA of at least one microorganism, said screeing being effected on expression products of said clones to thereby identify clones which express a protein with a desired activity. Also disclosed is a process of screening clones having DNA from an uncultivated microorganism for a specified protein activity by screening for a specified protein activity in a library of clones prepared by (i) recovering DNA from a DNA population derived from at least one uncultivated microorganism; and (ii) transforming a host with recovered DNA to produce a library of clones which is screened for the specified protein activity.

9 Claims, 8 Drawing figures

Exemplary Claim Number: 1

Number of Drawing Sheets: 6

DATE FILED: September 30, 1998

----- KWIC -----

DEPV:

d. Glycoside synthesis using UDP-galactosyl transferase

DETL:

TABLE 4 ##STR30## wherein R = 4-methyl umbelliferone G2 .beta.-D-galactose .beta.-D-glucose .beta.-D-glucuronide **GB3** .beta.-D-celotrioside .beta.-D-cellobiopyranoside GC3 .beta.-D-galactose .alpha.-D-galactose GD3 .beta.-D-glucose .alpha.-D-glucose GE3 .beta.-D-glucuronide GI3 .beta.-D-N,N-diacetylchitobiose GJ3 .beta.-D-fucose .beta.-L-fucose .alpha.-L-fucose GK3 .beta.-D-mannose .alpha.-D-mannose non-Umbelliferyl substrates GA3 amylose [polyglucan .alpha.1,4 linkages], amylopectin [polyglucan branching .alpha.1,6 linkages] GF3 xylan [poly 1,4-D-xylan] GG3 amylopectin, pullulan GH3 sucrose, fructofuranoside

US-PAT-NO: 6004788

DOCUMENT-IDENTIFIER: US 6004788 A

TITLE: Enzyme kits and libraries

DATE-ISSUED: December 21, 1999

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Short; Jay M.	Encinitas	CA	N/A	N/A

US-CL-CURRENT: 435/183,435/189 ,435/190 ,435/191 ,435/193 ,435/194 ,435/195 ,435/212 ,435/232 ,435/4

ABSTRACT:

Recombinant enzyme libraries and kits where a plurality of enzymes are each characterized by different physical and/or chemical characteristics and classified by common characteristics. The characteristics are determined by screening of recombinant enzymes expressed by a DNA library produced from various microorganisms.

2 Claims, 4 Drawing figures

Exemplary Claim Number: 1

Number of Drawing Sheets: 4

DATE FILED: July 18, 1995

----- KWIC -----

BSPV:

d. Glycoside synthesis using UDP-galactosyl transferase

DETL:

TABLE 4 _____ #STR25## - 4-methyl
umbelliferone wherein R = G2 .beta.-D-galactose .beta.-D-glucose
.beta.-D-glucuronide **GB3** .beta.-D-celotrioside .beta.-D-cellobiopyranoside
GC3 .beta.-D-galactose .alpha.-D-galactose GD3 .beta.-D-glucose
.alpha.-D-glucose GE3 .beta.-D-glucuronide GI3
.beta.-D-N,N-diacetylchitobiose GJ3 .beta.-D-fucose .alpha.-L-fucose
.beta.-L-fucose GK3 .beta.-D-mannose .alpha.-D-mannose non-Umbelliferyl
substrates GA3 amylose [polyglucan .alpha.1,4 linkages], amylopectin
[polyglucan branching .alpha.1,6 linkages] GF3 xylan [poly 1,4-D-xylan] GG3
amylopectin, pullulan GH3 sucrose, fructofuranoside

US-PAT-NO: 5958672

DOCUMENT-IDENTIFIER: US 5958672 A

TITLE: Protein activity screening of clones having DNA from uncultivated microorganisms

DATE-ISSUED: September 28, 1999

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Short; Jay M.	Encinitas	CA	N/A	N/A

US-CL-CURRENT: 435/4,435/183 ,435/69.1 ,536/23.1 ,536/23.2

ABSTRACT:

Disclosed is a process of screening clones having DNA from an uncultivated microorganism for a specified protein, e.g. enzyme, activity by screening for a specified protein, e.g. enzyme, activity in a library of clones prepared by (i) recovering DNA from a DNA population derived from at least one uncultivated microorganism; and (ii) transforming a host with recovered DNA to produce a library of clones which is screened for the specified protein, e.g. enzyme, activity.

15 Claims, 5 Drawing figures

Exemplary Claim Number: 1

Number of Drawing Sheets: 5

DATE FILED: June 3, 1996

----- KWIC -----

BSPR:

d. Glycoside synthesis using UDP-galactosyl transferase

DETL:

TABLE 4 _____ 4 #STR33##
_____ 4-methyl umbelliferone wherein R = G2
.beta.-D-galactose .beta.-D-glucose .beta.-D-glucuronide GB3
.beta.-D-cellobioside .beta.-D-cellobiopyranoside GC3 .beta.-D-galactose
.alpha.-D-galactose GD3 .beta.-D-glucose .alpha.-D-glucose GE3
.beta.-D-glucuronide GI3 .beta.-D-N,N-diacetylchitobiose GJ3 .beta.-D-fucose
.alpha.-L-fucose .beta.-L-fucose GK3 .beta.-D-mannose .alpha.-D-mannose
non-Umbelliferyl substrates GA3 amylose [polyglucan .alpha.1,4 linkages],
amylopectin [polyglucan branching .alpha.1,6 linkages] GF3 xylan [poly
1,4-D-xylan] GG3 amylopectin, pullulan GH3 sucrose, fructofuranoside

US-PAT-NO: 5874548

DOCUMENT-IDENTIFIER: US 5874548 A

TITLE: Regioselective sulfation

DATE-ISSUED: February 23, 1999

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Flitsch; Sabine	Oxford	N/A	N/A	<u>GB3</u>
Guilbert; Benedicte	Oxford	N/A	N/A	<u>GB3</u>

US-CL-CURRENT: 536/1.11,536/122 ,536/123.13 ,536/124 ,536/55.2

ABSTRACT:

A direct method is disclosed for the regioselective sulfation of an organic molecule having optionally derivatized hydroxyl groups on at least two adjacent carbon atoms. The method comprises the treatment of a di-(optionally substituted alkyl and/or aryl) stannylene acetal derivative of the molecule with an electrophilic sulfating agent, preferably sulfur trioxide/trimethylamine. The disclosed method is useful for the selective sulfation of a variety of mono-, di- and oligosaccharides. Novel saccharides prepared according to this method are also disclosed.

4 Claims, 0 Drawing figures

Exemplary Claim Number: 1

DATE FILED: May 16, 1997

----- KWIC -----

INCO:

GB3

INCO:

GB3

BSPR:

This methodology of selected sulfation was applied to the synthesis of sulfated N-acetyl lactosaminide 23, the thiophenyl glycoside of 1. Thiophenyl N-acetyl lactosaminide 21 is not commercially available and was prepared by enzymatic galactosylation of 20 using .beta.-1,4-galactosyltransferase from bovine milk. As an aside, it is interesting to note that it has previously been reported that 20 is not a substrate for this enzyme, (see, for example, Wong, C. H., et al, J. Am. Chem. Soc. 113, 8137-8145, 1991), but gave 21 in good isolated yield (.about.60%) using previously described procedures, (see, for example, Guilbert, B., and Flitsch, S. L., J. Chem. Soc., Perkin Trans. I, 1181-1186, 1994; Wong, C. H., et al, J. Org. Chem., 47, 5416-5418, 1982; and Unverzagt, C., et al, J. Am. Chem. Soc., 112, 9308-9309, 1990): ##STR9## These results might be due to the higher concentration of enzyme and acceptor (1 U/ml; 40 mM) as compared to the previous study (40 mU/ml; 25 mM). The 1,4 linkage in 21 was confirmed by NMR studies after acetylation. Treatment of 21 with acetic anhydride/pyridine at room temperature gave, after 45 hours, 22 which surprisingly contained free 3' and 4' hydroxyl groups. Nevertheless, the

relevant ring protons in 22 showed a suitable spread of NMR signals to make NOE experiments possible. Upon acetylation of 21 to 22, the 4-H signal was not shifted downfield and irradiation of 1'-H and 6'-Hb at 4.38 ppm caused 4.7% enhancement of the 4-H signal and as expected of 5'-H, 3'-H (7%) and 6'-Ha (8%) confirming the existence of a 1,4-linkage in 22.

DEPU:

General--Reactions were carried out in solvents distilled from standard drying agents; thin layer chromatography was performed on aluminium sheets silica gel 60F.sub.254 (Merck, layer thickness 0.2 mm); the components were detected by heating the TLC after spraying with a solution of 5% sulfuric acid-5% anisaldehyde in ethanol; silica gel C60 (Merck, 40-60 .mu.m) was used for flash chromatography; NMR spectra were recorded on Bruker AM-500 MHz, Varian Gemini 200 MHz or Bruker AM 200 MHz spectrometers using solvents as stated; Coupling constants J are in Herz; IR spectra were recorded on a Perkin-Elmer 1750 spectrometer and optical rotations on a Perkin-Elmer 241 polarimeter; mass spectrometry was carried out on VG Analytical Ltd, ZABIF or BIO-Q mass spectrometers using chemical impact (CI/NH.sub.3), ammonia desorption chemical ionisation (DCI/NH.sub.3), positive argon fast atom bombardment (FAB) and negative electrospray (ES.sup.-) as indicated; high resolution mass spectra were recorded on a VG AutospecEQ spectrometer (FAB.sup.-), Bruker FTICR using matrix assisted laser desorption ionisation (MALDI) or liquid secondary ionisation mass spectrometry (LSIMS) or by the EPSRC mass spectrometry service centre at Swansea; uridine 5'-diphospho-glucose (UDP-glucose), uridine 5'-diphospho-glucose 4-epimerase (EC 5.1.3.2), .beta.-1,4-galactosyltransferase from bovine milk (EC 2.4.1.22) and galactocerebroside (Type II, contains primarily nervonic acid) were purchased from Sigma; calf intestinal alkaline phosphatase (CIAP) (EC 3.1.3.1) and bovine serum albumin (BSA) were obtained from Boehringer Mannheim.

DEPU:

20 (12.5 mg, 40 .mu.mol) was sonicated with 50 mM sodium cacodylate buffer (pH 7.4, 1 ml) containing MnCl.sub.2 (2 mM), and NaN.sub.3 (6 mM) for 15 min. To the white suspension were added BSA (0.9 mg), CIAP (7 U), UDP-glucose (29.9 mg, 48 .mu.mol), UDP-galactose 4-epimerase (4 U) and .beta.-galactosyltransferase (1.07 U). The reaction mixture was incubated at 37.degree. C., after 17 hours the clear solution was reduced in vacuo and the residue chromatographed twice (MeOH/CHCl.sub.3 /H.sub.2 O 4:5:1, then MeOH/CHCl.sub.3 1:4) affording 21 as a white solid (11.3 mg, 60%): [.alpha.].sup.23.sub.D +8.3 (c 0.9 in H.sub.2 O); m.p. 228.degree. C.; Rf 0.35 (MeOH/CHCl.sub.3 /H.sub.2 O 4:5:1); .nu..sub.max (KBr)/cm.sup.-1 3409, 3300 (OH, NH), 2940, 2880 (CH), 1646 (C.dbd.O), 1548 (NH); .delta..sub.H (500 MHz; CD.sub.3 OD) 2.01 (3H, s, Ac), 3.46-3.47 (1H, m, 5-H), 3.50 (1H, dd, J 3.2, 9.7, 3'-H), 3.55 (1H, dd, J 7.5, 9.7, 2'-H), 3.60 (1H, dd, J 4.6, 7.5, 5'-H), 3.66-3.68 (2H, m, 3-H, 4-H), 3.70 (1H, dd, J 4.5, 11.5, 6'-Ha), 3.78 (1H, dd, J 7.5, 11.5, 6'-Hb), 3.83 (1H, d, J 3.2, 4'-H), 3.85-3.89 (2H, m, 2-H, 6-Ha), 3.94 (1H, dd, J 2.5, 12.3, 6-Hb), 4.41 (1H, d, J 7.5, 1'-H), 4.81 (1H, d, J 10.5, 1-H), 7.27-7.33 (3H, m, Ph), 7.50-7.52 (2H, m, Ph); .delta..sub.C (125.78 MHz; CD.sub.3 OD) 22.92 (CH.sub.3), 55.69 (2-C), 62.00 and 62.54 (2 CH.sub.2), 70.34, 72.60, 74.83, 75.59, 77.17, 80.52 and 80.67 (7 CH), 88.49 (1-C), 105.03 (1'-C), 128.31 (CH, Ph), 129.93 (2 CH, Ph), 132.32 (2 CH, Ph), 135.74 (C, Ph), 173.37 (CO); m/z (DCI) 476 (MH.sup.+ , 5%), 366 [(M-SPh).sup.+ , 36], 204 [(M-271).sup.+ , 100].

ORPL:

Wong, C. et al., "Probing the Acceptor Specificity of β -1,4-Galactosyltransferase for the Development of Enzymatic Synthesis of Novel Oligosaccharides", J. Am. Chem. Soc., 113, 8137-8145 (1991).

US-PAT-NO: 5856082

DOCUMENT-IDENTIFIER: US 5856082 A

TITLE: Devices and methods for characterizing proteins and peptides

DATE-ISSUED: January 5, 1999

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Aebersold; Rudolf H.	Mercer Island	WA	N/A	N/A
Amankwa; Lawrence N.	Surrey	N/A	N/A	<u>GB3</u>

US-CL-CURRENT: 435/4,204/452 ,204/603 ,250/288 ,422/70 ,435/15 ,435/21 ,435/287.9 ,435/288.6 ,435/68.1 ,435/7.1 ,435/7.5 ,435/97

ABSTRACT:

The present invention provides analytical devices for the characterization of the primary structure of proteins and peptides, comprising a microenzyme reactor, a separation device, an interface between the microenzyme reactor and the separation device, a mass spectrometer, and an interface between the separation device and the mass spectrometer. Also provided are methods for characterizing a protein or peptide utilizing such devices.

42 Claims, 7 Drawing figures

Exemplary Claim Number: 22

Number of Drawing Sheets: 5

DATE FILED: August 31, 1994

----- KWIC -----

INCO:

GB3

DEPR:

In another embodiment of the present invention, the immobilized enzymes are enzymes which modify proteins or peptides by adding various groups to the protein or polypeptide. Such modifying enzymes include glycosylating enzymes that add sugar moieties (i.e., sugar-modifying enzymes such as galactosyltransferase, fucosyltransferase, sialyltransferase, and mannosyltransferase) and phosphorylating enzymes that add phosphate groups (i.e., various protein kinases).

DEPR:

A wide variety of enzymes may be used to assess glycosylation of proteins and peptides. Representative examples of enzymes which add glycosyl groups ("Modifying Enzymes") include N-acetylglucosaminyltransferase, galactosyltransferases, fucosyltransferase, sialyltransferase and mannosyltransferase. Representative examples of enzymes which remove glycosyl groups include glycosidases (endo and exo), galactosidase, fucosidase, sialidase, and mannosidase.

US-PAT-NO: 5756291

DOCUMENT-IDENTIFIER: US 5756291 A

TITLE: Aptamers specific for biomolecules and methods of making

DATE-ISSUED: May 26, 1998

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Griffin; Linda	Atherton	CA	N/A	N/A
Albrecht; Glenn	Redwood City	CA	N/A	N/A
Latham; John	Palo Alto	CA	N/A	N/A
Leung; Lawrence	Hillsborough	CA	N/A	N/A
Vermaas; Eric	Oakland	CA	N/A	N/A
Toole; John J.	Burlingame	CA	N/A	N/A

US-CL-CURRENT: 435/6,530/413 ,536/23.1

ABSTRACT:

A method for identifying oligomer sequences, optionally comprising modified base, which specifically bind target molecules such as serum proteins, kinins, eicosanoids and extracellular proteins is described. The method is used to generate aptamers that bind to serum Factor X, PDGF, FGF, ICAM, VCAM, E-selectin, thrombin, bradykinin, PGF2 and cell surface molecules. The technique involves complexation of the target molecule with a mixture of oligonucleotides containing random sequences and sequences which serve as primer for PCR under conditions wherein a complex is formed with the specifically binding sequences, but not with the other members of the oligonucleotide mixture. The complex is then separated from uncomplexed oligonucleotides and the complexed members of the oligonucleotide mixture are recovered from the separated complex using the polymerase chain reaction. The recovered oligonucleotides may be sequenced, and successive rounds of selection using complexation, separation, amplification and recovery can be employed. The oligonucleotides can be used for therapeutic and diagnostic purposes and for generating secondary aptamers.

12 Claims, 6 Drawing figures

Exemplary Claim Number: 1

Number of Drawing Sheets: 6

DATE FILED: June 7, 1995

----- KWIC -----

DETL:

protein CD13 Pan myeloid (CA++ mobilization) cell surface protein CD14
Monocyte cell surface protein CD15 Hapten X (fucosyl N acetyllactosamine),
granulocyte CD16 IgG Fc Receptor III, low affinity CDw17 Lactoceramide CD18
chain of LFA-1, Mac 1, p150-95 CD19 Pan B, cell surface protein CD20 B cells,
dendritic reticular cell surface protein CD21 B cells, dendritic cells, CR2
(EBV Rc) Epstein Barr Virus Receptor CD22 B cell, cell surface protein CD23
IgE Fc Receptor low affinity CD24 B cell, cell surface protein CD25 IL2
Receptor CD26 Dipeptylpeptidase IV of activated T lymphocytes CD27 Mature T
cell surface protein CD28 Tp44 Ag, T cells, plasma cell surface protein CD29

VLA Beta chain CD30 Activation antigen CD31 Myeloid Ag. gpIIa Antigen CD32 IgG Fc Receptor CD33 Pan myeloid cell surface protein CD34 Lymphoid and myeloid precursor cell surface protein CD35 CR1, granulocytes, monocytes, dendritic cell surface protein CD36 gpIV, thrombospondin receptor CD37 B cell, cell surface protein CD38 B & T cells and plasmocyte cell surface protein CD39 B cells, macrophages, endothelial cell surface protein CD40 B cells, E1 lymphocytes carcinoma (BLCA) cell surface protein CD41a gpIIb/IIIa CD41b gpIIb CD42a gpIX CD42b gpIIb CD43 T cells, granulocytes, RBC, cell surface protein CD44 T cells, pre-B, granulocytes, cell surface protein CD45 Leukocyte common antigen (LCA) CD45Ra Restricted LCA, subset of CD4 + T cells CD45Rb Leukocyte cell surface protein CD45Ro Restricted LCA CD46 Membrane Cofactor Protein (MCP) CD47 N-linked glycan CD48 Leukocytes (PI-PLC linked) CDw49a a1 VLA chain CDw49b gpIIa1a, a2 VLA chain, collagen receptor CDw49c a3 VLA chain CDw49d a4 VLA chain CDw49e gpIIc, a5 VLA chain CDw49f gpIIcIIa, a6 VLA chain, laminin receptor CDw50 Leukocyte cell surface protein CD51 a chain vitronectin Rc (VNR) receptor CDw52 Campath-1, leukocyte cell surface protein CD53 Leukocyte cell surface protein CD54 ICAM-1 (Intracellular Adhesion Molecule), leukocytes CD55 DAF (Decay Accelerating Factor) CD56 N-CAM (NKH-1), Adhesion Molecule CD57 HNK1, Natural Killer cell surface protein CD58 Leukocyte functional antigen cell surface protein CD59 Leukocyte cell surface protein CDw60 Neu AC-Neu Gal, T lymphocytes subset CD61 gpIIa, VNR B chain, Integrin B3 CD62 GMP-140 (PADGEM) CD63 Activated platelet cell surface protein CD64 Fc receptor, monocytes CDw65 Fucoganglioside CD66 Granulocyte cell surface protein CD67 Granulocyte (PI linked) cell surface protein CD68 Macrophage cell surface protein CD69 Activation Inducer Molecule CDw70 Activated B & T cells, Reed Sternberg cell, cell surface protein CD71 Transferrin receptor CD72 Pan B cell surface protein CD73 Ecto5'Nucleotidase CD74 Class II associated invariant chain- CDw75 Mature B cell surface protein CD76 Mature B cells, T cell subset, granulocyte cell surface protein **CD77** Globotriaosylceramide (**Gb3**), Burkitt's lymphoma cell surface protein CDw78 Pan B (monocyte) cell surface protein ICAM-1 Thrombin Receptor ICAM-2 p-glycoprotein (MDR-1 gene product) LPAM-2 (MDR-2 gene product) VCAM-1 ELAM-1 T-cell receptor LAN-1 Histocompatibility antigens (Cell surface antigens) HLA-A1, HLA-A2, HLA-A3, HLA-A11, HLA-A23(9), HLA-A24(9), HLA-A25(10), HLA-A26(10), HLA-A29(w19), HLA-A30(w19), HLA-A31(w19), HLA-A32(w19), HLA-A33(w19), HLA-AW34(10), HLA-Aw36, HLA-Aw43, HLA-Aw66(10), HLA-Aw68(28), HLA-Aw69(28), HLA-Aw74(w19), HLA-Bw4(4a), HLA-Bw6(4b), HLA-B7, HLA-B8, HLA-B13, HLA-B18, HLA-B27, HLA-B35, HLA-B37, HLA-B38(16), HLA-B39(16), HLA-Bw41, HLA-Bw42, HLA-B44(12), HLA-B45(12), HLA-Bw46, HLA-Bw47, HLA-Bw48, HLA-B49(21), HLA-Bw50(21), HLA-B51(5), HLA-Bw52(5), HLA-Bw53, HLA-Bw54(22), HLA-Bw55(22), HLA-Bw56(22), HLA-Bw57(17), HLA-Bw58(17), HLA-Bw59, HLA-Bw60(40), HLA-Bw61(40), HLA-BW 62(15), HLA-Bw63(15), HLA-Bw64(14), HLA-Bw65(14), HLA-Bw67, HLA-Bw71(70), HLA-Bw72(70), HLA-Bw73, HLA-Bw75(15), HLA-Bw76(15), HLA-Bw77(15), HLA-Cw1, HLA-Cw2, HLA-Cw3, HLA-CW4, HLA-Cw5, HLA-Cw6, HLA-Cw1 HLA-Cw8, HLA-Cw9(3), HLA-Cw10(3), HLA-Cw11, HLA-Dw1, HLA-Dw2, HLA-Dw3, HLA-Dw4, HLA-Dw5, HLA-Dw8, HLA-Dw9, HLA-Dw10, HLA-Dw11(7), HLA-Dw12, HLA-Dw13, HLA-Dw14, HLA-Dw15, HLA-Dw16, HLA-Dw17(7), HLA-Dw18(6), HLA-Dw19(w6), HLA-Dw20, HLA-Dw21, HLA-Dw22, HLA-Dw23, HLA-Dw24, HLA-Dw25, HLA-Dw26, HLA-DR1, HLA-DR2, HLA-DR3, HLA-DR4, HLA-DR5, HLA-DRw6, HLA-DR7, HLA-DRw8, HLA-DR9, HLA-DRw10, Hnk-DRw11(5), HLA-DRWI2(5), HLA-DRW13(6), HLA-DRw14(6), HLA-DRWI5(2), HLA-DRw16(2), HLA-DRw17(3), HLA-DRw18(3), HLA-DRw52, HLA-DRw53, HLA-DQw1, HLA-DQw2, HLA-DQw3, HLA-DQw4, HLA-DQw5(w1), HLA-DQw6(w1), HLA-DQw7(w3), HLA-DQw8(w3), HLA-DQw9(w3), HLA-DPw1, HLA-DPw2,

HLA-DPw3, HLA-DPw4, HLA-DPw5, HLA-DPw6 Insulin receptor Insulin-like growth factor receptor Sodium/potassium ATPase Sodium/chloride cotransporter IL-1 receptor IL-3 receptor IL-4 receptor Parathyroid hormone receptor GnRH receptor CSF-M receptor CSF-GM receptor CSF-G receptor Erythropoietin receptor Complement receptor C1b receptor EGF receptor Follicle stimulating hormone receptor Follicle stimulating hormone releasing hormone receptor Growth hormone receptor Glucagon receptor Leutinizing hormone receptor Leutinizing hormone releasing hormone receptor Growth hormone releasing hormone receptor Nerve growth factor receptor Melanotropin release inhibiting hormone receptor Platelet derived growth factor receptor (alpha and beta) Fibroblast growth factor receptor (i and 2) Somatotropin release inhibiting hormone receptor Somatotropin releasing hormone receptor Thyrotropin receptor Thyrotropin releasing hormone receptor Tumor necrosis factor alpha receptor Tumor necrosis factor beta receptor Complement C3a receptor Complement C5a receptor Complement C3b receptor Complement CR2 receptor Complement CR3 receptor CSF-1 receptor GMCSF receptor SLF receptor flg oncogene protein c-ros oncogene protein erb-B2 oncogene protein trk-B oncogene protein trk oncogene protein c-fems oncogene protein c-kit oncogene protein erb-B oncogene protein HER-2/neu oncogene protein kit oncogene protein C. Virus and Bacterial Targets HIV-1/HIV-2 reverse transcriptase (including RNase H) protease integrase gag proteins (including p17, p24, p15) tat protein rev protein nef protein vif protein vpr protein vpu protein envelope proteins (including gp 120, gp41) HTLV-I/II gag proteins (including gp24, gp19, gp15) protease pol (including reverse transcriptase and RNase H) envelope genes (including gp46 and gp41) tax rex Human papillomaviruses E7 protein E6 protein E6* protein E4 protein E1 proteins E1-E4 proteins E2 proteins capsid proteins (L1 and L2) Influenza A and B polymerase proteins (including PA, PB1, and PB2) hemagglutinin (HA) neuraminidase (NA) nucleoprotein (NP) M1 and M2 proteins NS1 and NS2 proteins Hepatitis B Envelope (surface antigen) P proteins (including pre-S1, pre-S2 and S) Nucleocapsid (core) proteins P-gene product X-gene product Cytomegalovirus Immediate early (alpha) gene products (including IE1 and IE2) Early (beta) gene products (including DNA pol p140, DBP52 EDBP 140) Late (gamma) structural gene products Herpes Simplex Virus thymidine kinase ribonucleotide reductase virus-encoded envelope glycoproteins Epstein-Barr Virus immediate early gene products (including ZLF1 protein and RLF1 protein) early gene products (including SMLF1, MRF1, ALF2, HRF1, ribonucleotide reductase, thymidine kinase [XLF1]) virus-encoded glycoproteins lipopolysaccharides (from gram negative or gram positive bacteria) botulinum toxin diphtheria toxin cholera toxin endotoxin D. Intracellular Targets (proteins/lipids/Enzymes Lipids fatty acids glycerides glycerylethers phospholipids sphingolipids steroids fat soluble vitamins glycolipid phospholipids lecithins phosphatidic acids (cephalins) sphingomyelin plasmalogens phosphatidyl inositol phosphatidyl choline phosphatidyl serine

DETL:

phosphatidyl inositol diphosphatidyl glycerol oleic palmitic stearic acids linoleic acid acylcoenzyme A phosphoglyceride phosphitidate retinoic acid retinoids lipoprotein A proteolipid sphingolipids sphingosine ceramides cerebrosides gangliosides sphingomyelins terpenes sesquiterpenes diterpenes triterpenes tetraterpenes steroids cholesterol cholesterol esters cholic acid phosphatidylcholine estrogen testosterone androgens 2-keto-3-deoxyoctanoate Intracellular proteins p53 pRB retinoblastoma gene

product) methemoglobin hemoglobin A hemoglobin A1 hemoglobin A2 hemoglobin
 Barcelona hemoglobin Barts hemoglobin Beth Isreal hemoglobin Bunbury
 hemoglobin Cochin-Port Royal hemoglobin Cowntown hemoglobin Cranston
 hemoglobin Creteil hemoglobin D hemoglobin D-Los Angeles hemoglobin D-Punjab
 hemoglobin F hemoglobin Gower hemoglobin Hammersmith hemoglobin Hiroshima
 hemoglobin Indianapolis hemoglobin Kansas hemoglobin Kariya hemoglobin
 Kempsey hemoglobin Kenya hemoglobin Lepore hemoglobin M hemoglobin M Hyde
 Park hemoglobin M Iwate hemoglobin M Saskatoon hemoglobin Nancy hemoglobin
 Philly hemoglobin Quong Sze hemoglobin Ranier hemoglobin Raleigh hemoglobin
 S hemoglobin Sealy hemoglobin Seattle hemoglobin St. Louis hemoglobin St.
 Mande hemoglobin Titusville hemoglobin Torino hemoglobin Wayne hemoglobin
 York hemoglobin Zurich src oncogene protein abl oncogene protein met
 oncogene protein Ha-ras oncogene protein Ki-ras oncogene protein N-ras
 oncogene protein fps oncogene protein mos oncogene protein raf oncogene
 protein pim oncogene protein crk oncogene protein dbi oncogene protein rel
 oncogene protein yes oncogene protein fgr oncogene protein L-myc oncogene
 protein int-1 oncogene protein ets oncogene protein bcl-2 oncogene protein
 1-acylglycerol-3-phosphate acyltransferase 3-b-hydroxy-steroid
 dehydrogenase(EC5.3.3.1) 3-hydroxybutyrate dehydrogenase 3-ketothiolase
 5'-nucleotidase 8-oxoguanosine deglycosylase 11b-hydroxylase (EC 1.14.15:4)
 18-hydroxylase 21-steroid hydroxylase(EC 1119910) 2,3-oxidosqualene
 lanosterol cyclase 24,28-sterol reductase a-actin a-mannosidase a-melogenin
 a-tubulin acetolactate synthase acetyl cholinesterase acetyl glucosaminyl
 transferase acetyl spermine deactylase acetyl transacylase acetyl-CoA
 carboxylase acetyl-CoA malate citrate synthase acid phosphatase acid
 protease aconitase actin adenosine deaminase adenosylhomocysteine
 hydrolase adenosylmethionine decarboxylase adenylate cyclase adenylate
 deaminase adenylate kinase adenylsuccinate lyase adenylsuccinate synthase
 alanine aminotransferase alcohol dehydrogenase aldolase adose reductase
 alkaline phosphatase amidophosphobosylalanine transferase AMP
 phosphodiesterase amyloid b/A4 protein amyloid precursor protein ankarin
 arginase argininosuccinate lyase argininosuccinate synthetase aromatase
 aryl sulfatase aspartate aminotransferase aspartate transcarbamoylase ATP
 diphosphohydrolase ATPase b-actin b-glucuronidase b-glycerophosphatase
 b-ketoacyl-ACP reductase b-ketoacyl-ACP synthetase b-spectrin b-tropomyosin
 b-tubulin C5a inactivation factor calcitonin calmodulin calpain I
 calreticulin carbamoyl-phosphate synthetase carbonic anhydrase casein kinase
 1 casein kinase 2 catalase catechol methyltransferase cathepsin cathepsin
 B and L cdc 2 p34 cdc 10 cdc 13 p60 cdc 25 p80 chaparonin cholesterol
 esterase cholesterol monooxygenase citrate synthetase clathrin collagenase
 connective tissue activating peptide core protein cortisol dehydrogenase
 cyclin A and B cyclophilin cytidine deaminase cytidylate deaminase
 cytochrome C peroxidase cytochrome P450 cytosine methyl transferase defensin
 diacylglycerol acyltransferase dihydrofolate reductase dihydrouracil
 dehydrogenase dihydroorotate dihydroorotate dehydrogenase dioxygenase
 dopamine monooxygenase dynenin elastase elastin elongation factor Tu
 endo-rhamnosidase enolase enoyl-ACP hydratase enoyl-ACP reductase fatty acid
 synthetase ferritin ferredoxin fructose bisphosphate aldolase fumarase
 GABA aminotransferase galactosidase gelatinase gelsolin glucophosphate
 isomerase glucosylceramide galactosyl transferase glutaminase glutamine
 phosphoribosylpyrophosphate aminotransferase glycerol phosphate acyl
 transferase glycerol phosphate dehydrogenase glycinamide ribonucleotide
 transfomylase GTP binding protein heavy meromyosin hexokinase histaminase

histidine decarboxylase HSP 27 hydropyrimidine hydrokse hydroxy acyl CoA
dehydrogenase hydroxy steroid dehydrogenase hydroxy-methylglutaryl CoA
cleavage enzyme hydroxy-methylglutaryl CoA reductase hydroxy-methylglutaryl
CoA synthetase hypoxanthine-guanine phosphoribosyl transferase IMP
dehydrogenase indole lyase inositol phosphate phosphatase isocitrate lyase
kinin generating enzyme lactate dehydrogenase lactoferrin laminin leukocyte
elastase lipocortin lipoxygenase long chain fatty acid CoA ligase lysozyme
major basic protein malate dehydrogenase malate synthase malonyl
transacylase

US-PAT-NO: 5627271

DOCUMENT-IDENTIFIER: US 5627271 A

TITLE: Glycolipids, their preparation and use

DATE-ISSUED: May 6, 1997

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
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Guilbert; Benedicte	Saint-Renan	N/A	N/A	FRX

US-CL-CURRENT: 536/18.5,424/94.5 ,435/193

ABSTRACT:

A process for preparing a glycolipid of formula (I): [(sac).sub.m+n]--O--CH.sub.2 --CHX--CH(OQ)--Y wherein Q is H or a blocking group; X is N.sub.3 or NH.sub.2 ; Y is a lipid residue; each sac is a saccharide; and m and n are each integers; comprises reacting a corresponding glycolipid of formula (II): (sac).sub.n --O--CH.sub.2 --CHX--CH(OQ)--Y with the corresponding saccharide (sac).sub.m or a reactive derivative thereof, in the presence of an enzyme that catalyses the reaction. Compounds of formulae (I) and (II) are suitable for elaboration to a variety of saccharide ceramides.

13 Claims, 0 Drawing figures

Exemplary Claim Number: 1

DATE FILED: October 13, 1994

----- KWIC -----

BSPR:

The enzyme that is used in the invention is typically of the type that is known for the biosynthesis of N-linked sugars in glycoproteins. It is surprising that such known enzymes will also utilise glycolipids (II) as a substrate but, as is evident from the data herein, that is the case. Suitable sialyltransferases (.alpha.2-3 and .alpha.2-6) may be obtained from porcine or rat liver, and galactosyltransferase (from bovine milk, 2.4.1.22) and fucosyltransferase activity can also be used. Specific examples of enzymes that may be used are Gal.beta.1, 3GalNAc-.alpha.2, 3-sialyltransferase (EC 2.4.99.4) and Gal.beta.1, 4GlcNAc-.alpha.2, 6-sialyltransferase (EC 2.4.99.1).

DEPR:

The GlcNAc ceramide (40) has been tested as a substrate for the galactosyltransferase with and without the addition of the detergent Triton CF-54. No conversion was obtained. Thus (40), as opposed to (27), does not get galactosylated by the transferase.

DEPL:

Compound (28): The acceptor (27) (16.5 mg, 31.2 .mu.mol) was sonicated carefully for 15 min in 39 .mu.l of 40 mM MnCl.sub.2, 93 .mu.l of 50 mM NaN.sub.3, 102 .mu.l and 330 .mu.l of sodium cacodylate buffer pH 7.4 100 mM and 50 mM respectively. Then 35 .mu.l of 2% BSA, 5.5 .mu.l (5.5 U) of 1 U/.mu.l calf intestinal alkaline phosphatase, 143 .mu.l (1.92 U) of 6.7 U/500

.mu.l UDP-Glc 4-epimerase, 29 .mu.l (487 mU) of 8.4 U/500 .mu.l **galactosyl-transferase** and 21.9 mg (37.9 .mu.mol, 1.2 eq.) of UDP-Glc were added. The final concentrations were as follows: [Acceptor]=40 mM, [UDP-Glc]=49 mM, [MnCl.sub.2]=2 mM, [NaN.sub.3]=6 mM, [Sodium cacodylate]=50 mM.

DEPL:

Compound (41): The acceptor (39) was dissolved in 37.4 .mu.l of 40 mM MnCl.sub.2, 90 .mu.l of 50 mM NaN.sub.3, 133 .mu.l and 481 .mu.l of respectively 100 mM and 50 mM sodium cacodylate buffer pH 7.4. To the solution were added 0.7 mg of BSA, 20.7 mg (35.8 .mu.mol) of UDP-Glc, 5.3 .mu.l of CiAP (1 U/.mu.l), 1.1 U of **galactosyltransferase** and 2.7 U of UDP-Glc 4-epimerase. The reaction mixture was incubated at 37.degree. C. for 24 h. The gel formed was loaded on a small reverse-phase column (Sorbisil C200 silica gel RP18, packed in methanol, washed with water). The column was washed with water and the product eluted with methanol. The organic fraction was reduced in vacuo leading to (41) as an amorphous powder contaminated with a trace of (39) (16.9 mg, 85%). M.S.(ES.sup.+):MH.sup.+ =664.

ORPL:

Nicolaou, K. et al. (1988) "A Practical and Enantioselective Synthesis of Glycosphingolipids and Related Compounds. Total Synthesis of **Globotriaosylceramide (GB3)**" J. Am. Chem. Soc., 110:7910-7912.